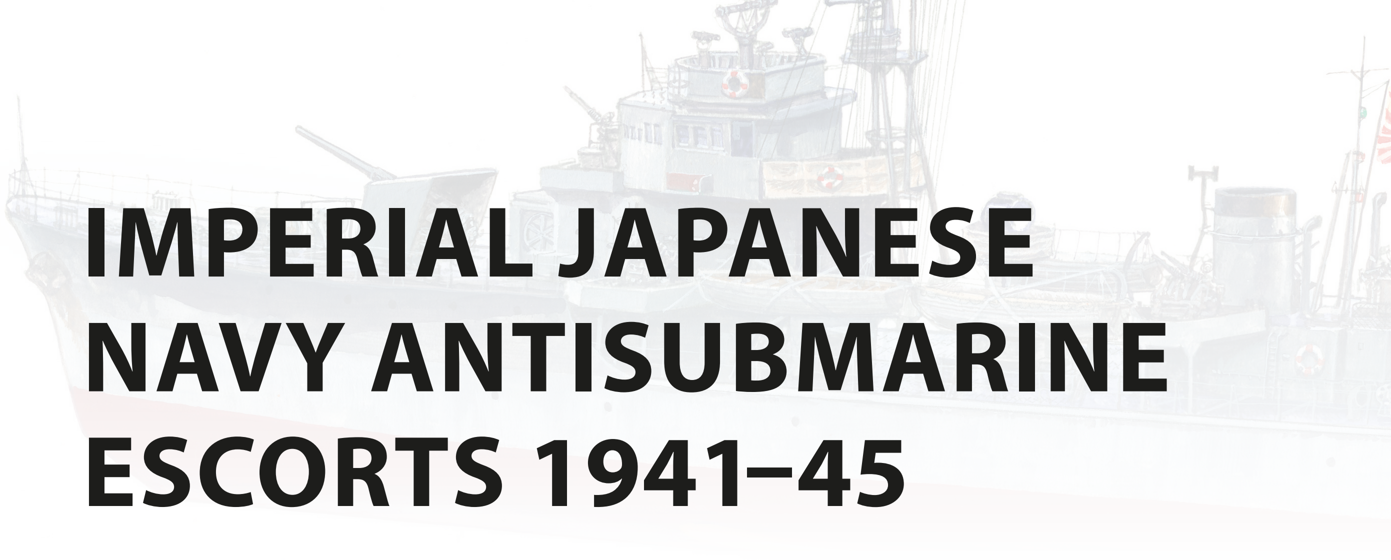
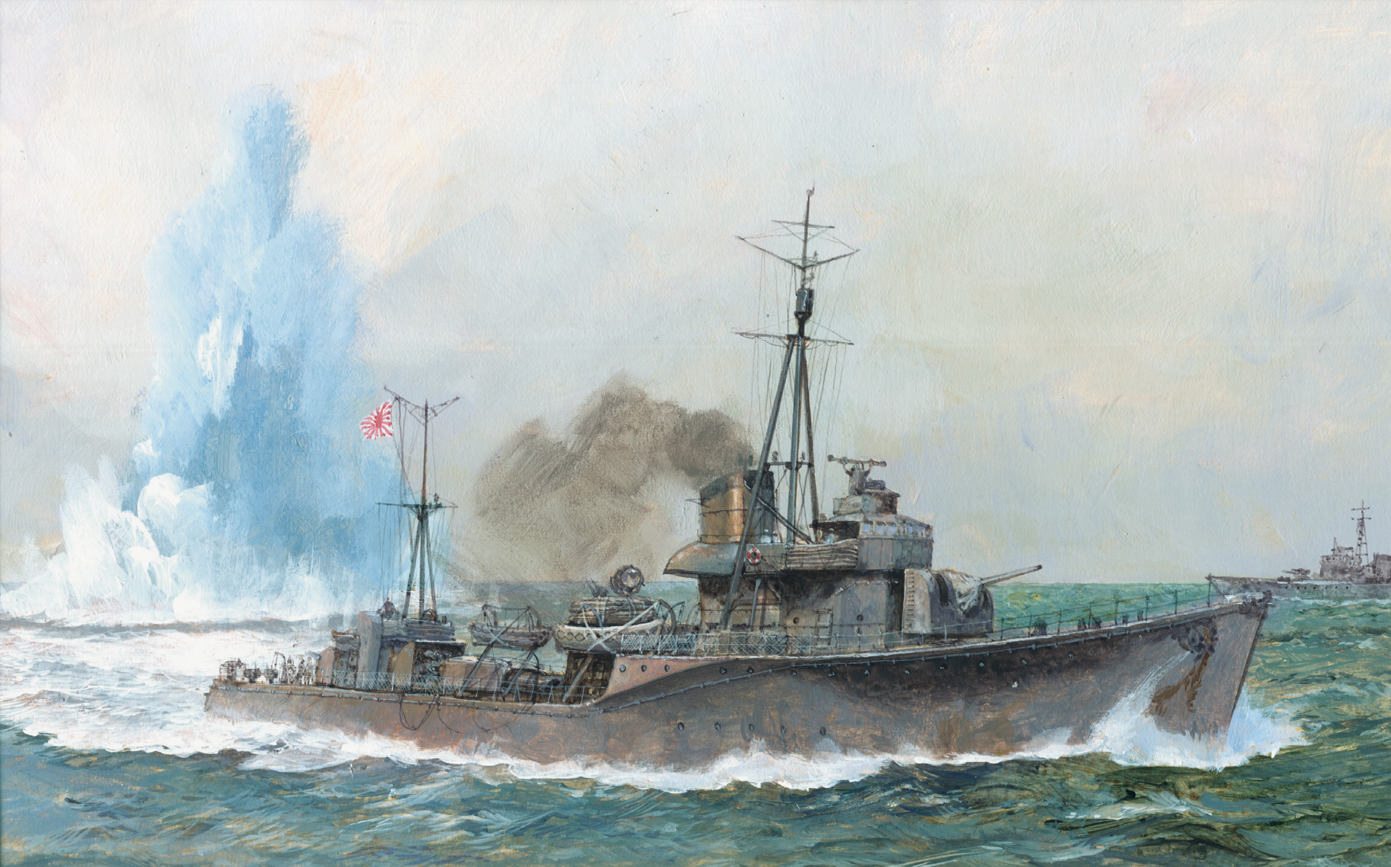


IMPERIAL JAPANESE NAVY ANTISUBMARINE ESCORTS 1941–45



MARK STILLE

ILLUSTRATED BY PAUL WRIGHT

NEW VANGUARD 248

IMPERIAL JAPANESE NAVY ANTISUBMARINE ESCORTS 1941–45

MARK STILLE ILLUSTRATED BY PAUL WRIGHT

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IMPERIAL JAPANESE NAVY ANTISUBMARINE ESCORTS 1941–45

INTRODUCTION

During the Pacific War, the Imperial Japanese Navy (IJN) went into the conflict with a marginal antisubmarine warfare (ASW) capability. This was a lamentable state of affairs for a nation dependent upon imports to sustain its war economy. The IJN possessed only a few purpose-built ASW escorts at the start of the war and these were augmented by a handful of second-class destroyers and a dozen torpedo boats assigned to perform escort duties. Once the magnitude of the threat to Japan's shipping became fully apparent in 1943, the IJN made plans for the mass production of ASW escorts. These arrived in 1944 but could not stop the massacre of Japanese shipping by increasingly bold and effective United States Navy (USN) submarines. The reasons for this colossal failure were not just tied to the lack of ASW escorts – IJN ASW sensors and weapons proved inferior and Japanese antisubmarine tactics were not well developed. This deadly combination resulted in the utter destruction of Japan's merchant shipping.

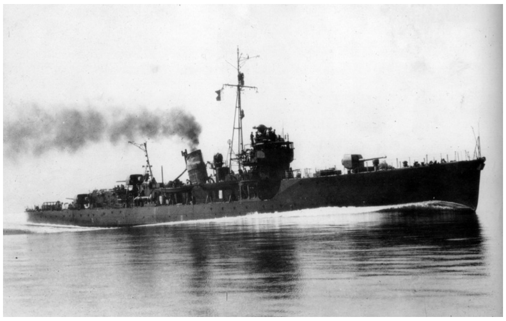
This volume will detail the history, weapons, and tactics of the IJN's ASW escorts. These include the Momi and Wakatake classes of second-class destroyers, the Tomozuru and Otori classes of torpedo boats, and the several types of ASW escorts (called *kaibokan* by the IJN) built from 1937 through to the end of the war. This book will only cover the classes mentioned above and not the smaller ASW escorts known as submarine chasers and the various other ships that the IJN pressed into service during the war as ASW escorts.

The IJN never had enough ASW escorts during the war and only turned to mass production of basic escort designs when it was too late. Lack of materials and shipyard capacity hindered Japanese efforts to dramatically increase production. This is Ishikawajima Shipyard in Tokyo in October 1945, which was one of the smaller yards the IJN turned to for escort production. Note the incomplete Type D escort alongside the quay at center. (NARA)

Japanese Naval Strategy and the Low Priority of ASW

Incomprehensibly for a nation dependent on seaborne trade, Japan gave little thought to how it might defend its sea lines of communication during wartime. The reasons for this are complex, but it boils down to the IJN's basic strategy and predilections. As demonstrated in the war with Russia, victory was the result of a decisive battle; ideally, this victory would be achieved early in a conflict so that Japan would not be subjected to a drawn-out war that it was ill-suited to wage. To achieve victory on its desired timeline, the IJN would have to be able to wage offensive war. Since ASW did not carry the promise of a decisive battle, it was simply not a priority for the IJN. Additionally, if the conflict was short, it would presumably conclude before the threat to Japanese sea lanes became acute.

From an operational standpoint, the IJN did not foresee the nature of the threat to its merchant fleet. The potential of the submarine to disrupt trade had been clearly demonstrated during World War I, and the IJN had sent a force of destroyers to the Mediterranean Sea to help defend Allied trade against German and Austrian submarines. However, the IJN had determined that its submarines were best used in support of fleet operations, with attacks on enemy sea lanes a second priority. In a classic case of mirror imaging, the IJN assumed that this was also the USN's intentions for employing its submarines. This assumption was actually correct, but when American submarine employment strategy suddenly shifted at the start of the Pacific War to focus on commerce attack, the Japanese were not ready to respond. Given this framework, Japanese prewar assumptions called for the loss of 800,000–1,100,000 tons of shipping in the first year of a war against the USN when Japanese ASW efforts were still developing, and the loss of between 700,000 and 800,000 tons for the following two years. When new construction was taken into account, these losses would be bearable.



The IJN's first class of dedicated escorts was the Shimushu class. This is the lead ship in the class in June 1941, the month she was completed and entered service. The design of the class was basic, as is evident in this view, and served as the design basis for the next several escort classes. *Shimushu* survived the war and was turned over to the Soviets in 1947, but served only a few years in the Soviet Pacific Fleet. (Yamato Museum)

This indifference toward ASW was reflected throughout the IJN. The best officers were assigned to the Combined Fleet. The Combined Fleet also received all modern destroyers, and these were primarily trained in torpedo attacks on enemy fleet units, not in ASW. Staffing priorities went to overseeing operations by the Combined Fleet with inadequate attention to rear-area defense. Defending trade was seen as an extension of coastal defense and as a wartime solution, for it would be created on the fly. The number of dedicated ASW escorts was pathetically low, and the Combined Fleet was often required to provide fleet destroyers on a temporary basis for naval convoys. Thus, Japan went to war without an organization, adequate ships, tactics, or training to conduct ASW.

The paucity of IJN ASW escorts is shown by the fact that on April 19, 1942, there were only two escort groups. The First Escort Group had only ten old destroyers, two torpedo boats, and five converted gunboats to protect ships headed back and forth from Japan to Singapore. The Second Escort Group had another four old destroyers, two torpedo boats, and one converted gunboat to protect the sea lanes from Japan to Truk in the Central Pacific.

In spite of the IJN's unpreparedness to deal with American submarines attacking Japan's trade routes, the optimistic assessment of losses to Japanese shipping was largely correct through 1942. Not until mid-1943 did the USN fix the problems with its submarine-launched torpedoes which, combined with a crop of aggressive American submarine skippers and a flood of new boats, caused Japanese losses to steadily increase. In response, on November 15, 1943, the IJN combined the two escort groups into the Grand Escort Command Headquarters. This created the illusion of unified control of convoy routing and ASW efforts, but in fact quickly proved ineffective. Meanwhile, losses due to American submarines reached catastrophic levels in 1944.

IJN training for ASW was also inadequate, with new escorts being thrown immediately into battle without an opportunity to work up and to master ASW tactics and develop new ones. The overwhelming majority of escorts were commanded by graduates from the merchant marine academy, not the naval academy, so they were less proficient in tactical matters and generally less aggressive than regular officers.

Another key weakness was in the development and deployment of radar. USN submarines developed tactics to attack convoys on the surface at night with the assistance of radar. IJN ASW escorts were often not equipped with radar, giving an immense tactical advantage to American submarines, allowing them to engage and disengage at will. Not until late 1944 did most IJN escorts get radar. Many were also not equipped with a radio-direction finding capability which Allied escorts found so important in the Atlantic.

The Japanese resisted the full institution of convoys until early 1944. This was due to the shortage of escorts and the desire to make the maximum use of available shipping. Early in the war, convoys were only run along primary shipping routes. These were small, with only two to five merchant ships and a small escort, sometimes a single ship. By March 1944, larger convoys had been adopted, between ten and 20 ships. Also, in July 1944, the first permanent escort group of four escorts was organized, which had the potential to increase tactical proficiency. These minor improvements were more than counterbalanced by the intensification of the USN threat to Japanese shipping in 1944, when American air power, primarily from carriers, was brought into action against Japanese convoys in areas where previously the only threat had been submarines.

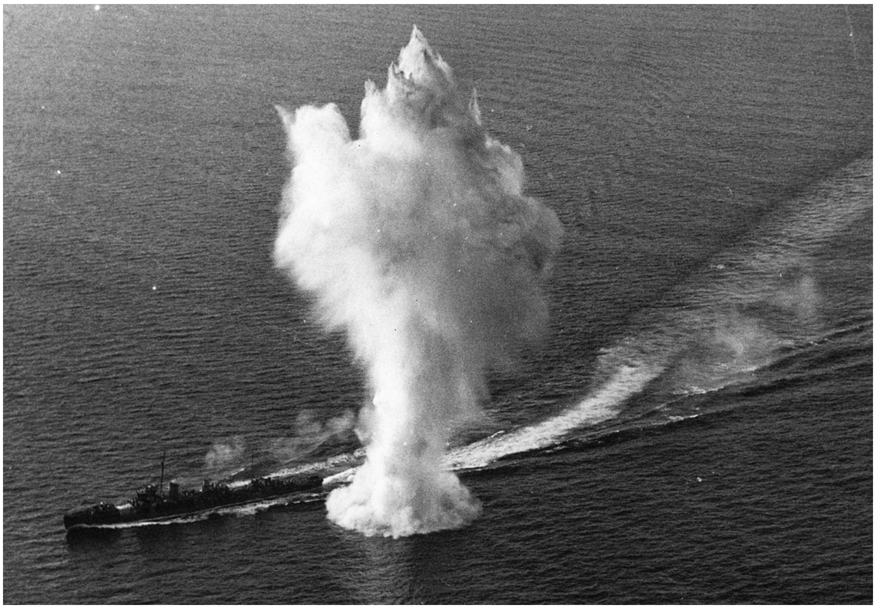
Japanese ASW Tactics

Upon sighting a submarine and assuming it immediately submerged to avoid attack, IJN ASW escorts would try to convert the visual contact into a sonar track. Given the short range of sonar, it was rarely the first mode of detection. The escort would move quickly to where the submarine was sighted and drop depth charges. Even if sonar contact was gained, it was lost when the escort approached the target. This created a blind period from contact until when the depth charges went into the water, and the longer this blind period was, the less accurate the attack.

When a depth charge attack was conducted, it was usually not of sufficient duration. Most American submarines noted that IJN escort attacks were quickly broken off. As will be discussed later, the biggest issue with the IJN's weak ASW tactics was that Japanese depth charges early in the war and into the mid-war period were incapable of engaging submarines below 295 feet. If the submarine was caught in shallow water, this would not matter. Otherwise, a Balao-class USN submarine could simply dive to its maximum depth of 400 feet and avoid damage.

Japanese ASW Escort Design Principles

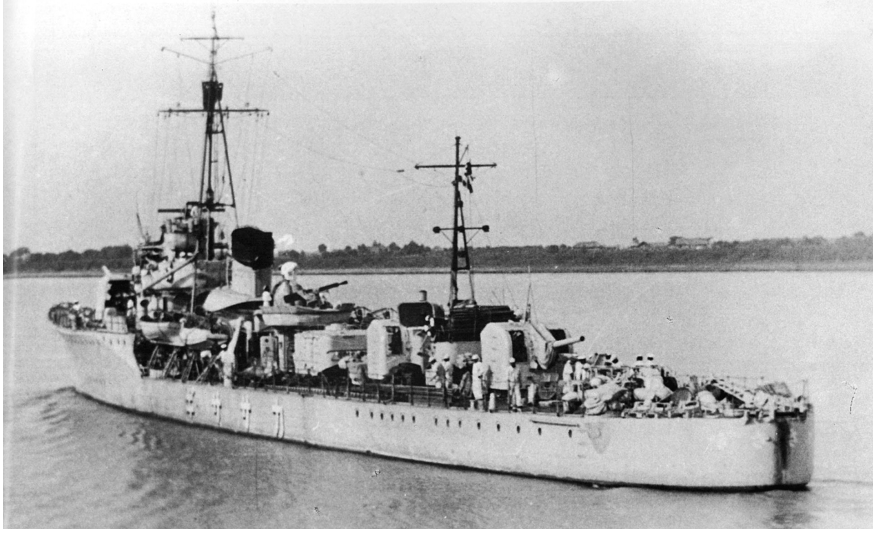
At the start of the war, most IJN ASW escorts were not built as such. This included a number of dated destroyers built in the 1920s of the Minekaze and Kamikaze classes (See NVG 198: *Imperial Japanese Navy Destroyers 1919–45 (1)*), the second-class destroyers of the Momi and Wakatake classes, and the torpedo boats of the Tomozuru and Otori classes. The age and



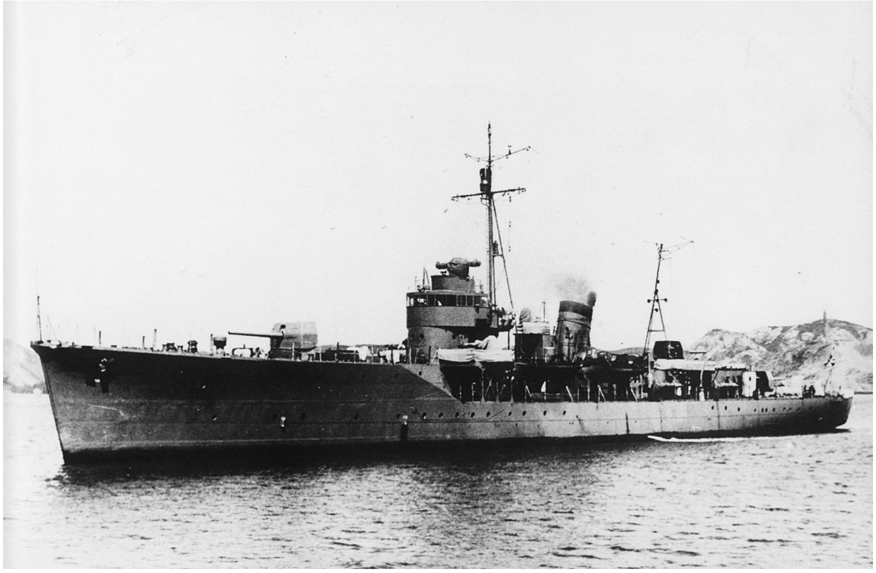
This photograph shows *Wakatake* under attack by USN carrier aircraft on March 30, 1944 near the Palau Islands. The destroyer was escorting a convoy when it was torpedoed and sunk. (*Ships of the World* Magazine)

limited capabilities of these ships made them unsuited for operations with the main fleet, so they were released for patrol and escort duties. Of note, none were built for commerce protection. The IJN had considered building a force of escorts designed especially for commerce protection, but this plan was aborted because of budgetary reasons.

The first ships built for coastal defense were the four ships of the Shimushu class, also often called Type A escorts. These were typed *kaibokan* (coastal defense vessels) by the Japanese and were originally designed for fishery protection and patrol duties in the Kurile Islands. When built, *kaibokan* were considered general-purpose escorts capable of minelaying, minesweeping, and ASW; note that convoy escort was a third priority for these ships. These ships were able to operate in the rough waters of the North Pacific, but otherwise were undistinguished as ASW escorts. Their top speed was



A prewar photograph of Otori-class torpedo boat *Hiyodori*, showing her relatively heavy armament of three 4.7-inch guns and a triple torpedo mount. *Hiyodori* was sunk on November 17, 1944 by USN submarine *Gunnel* off French Indochina. (*Ships of the World* Magazine)

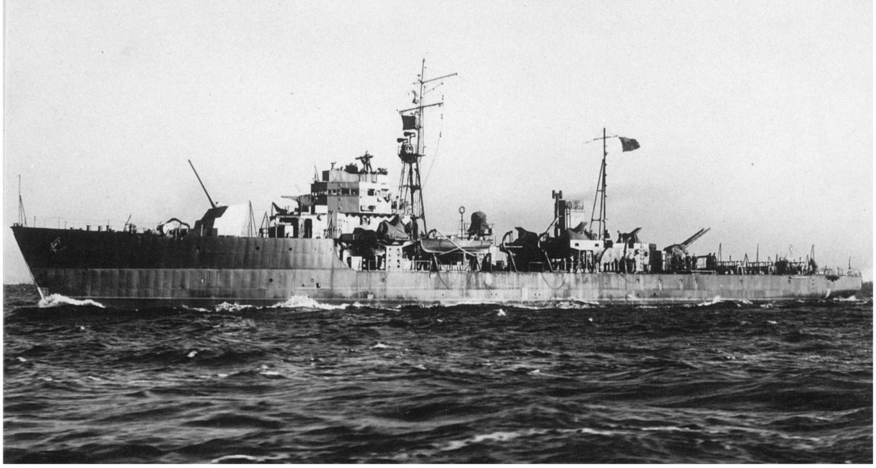


Etorofu-class escort *Mutsure* photographed in 1943. The ship had one of the shortest careers of any *kaibokan*, lasting only from July to September 2, 1943 when she was sunk by USN submarine *Snapper* north of Truk Atoll. (*Ships of the World* Magazine)

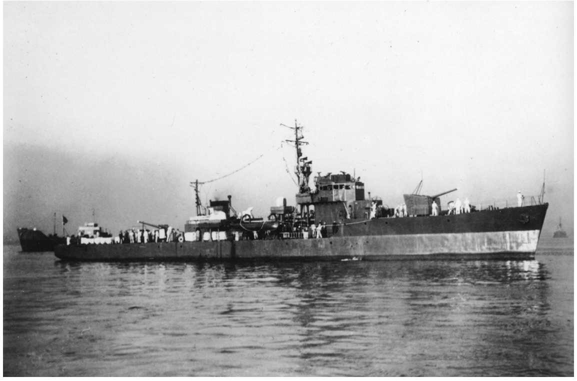
actually less than that of the surface speed of a USN fleet submarine, and their armament was modest, with a limited depth charge capability.

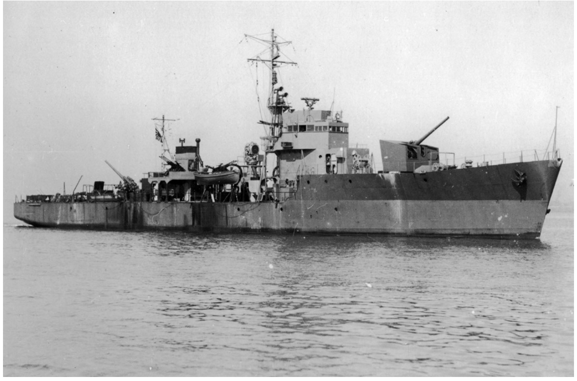
In 1942, 14 Modified Type A units were laid down; these were known as the Etorofu class and were completed at the beginning of March 1943. Beginning in October 1942, eight Type B units of the Mikura class were laid down. Tonnage for this class was increased and depth charge capacity greatly increased, indicating a focus on ASW for the first time.

By mid-1943, it was clear that the IJN had to devote more resources to ASW. This led to the design of the Modified Type B *kaibokan*. Beginning in January 1944, 31 units of the Ukuru class were laid down. The primary difference with the preceding class was an improved and simplified hull to facilitate mass production. The unfolding disaster caused by the American submarine attacks on Japan's shipping called for even greater efforts. This in turn led to the development of the Number 1 Class *kaibokan* (Type C), which was designed with mass production in mind. This was a simplified Type B design some 200 tons lighter with a simplified hull. The main gun



The Ukuru class was the final development of the IJN's large escort concept. This is *Shisaka* in December 1944 when she was completed. The ship is fitted with five triple 25mm mounts and a single 25mm gun placed forward of the bridge. Note the Type 22 and 13 radars on the masts. *Shisaka* survived the war, served briefly on repatriation duties, and then was handed over to the Nationalist Chinese only to be captured by the Communist Chinese in 1949. (*Ships of the World* Magazine)





battery was reduced and the ship focused on ASW. Diesel engines were fitted, which reduced the ship's top speed to 16.5 knots. The first unit was laid down in September 1943 and construction of the class continued until the end of the war.

Concurrent with the production of the Type C, construction also began on the Number 2 Class (Type D) *kaibokan*. This was virtually identical to the Type C but turbine engines were substituted for the diesel engines which were proving difficult to build in sufficient quantities. Construction of the Type D escorts began in October 1943; of the 143 ordered, only 63 were completed.

After a slow start, the Japanese did complete a large number of dedicated ASW escorts. Of the 364 envisioned, 171 were actually completed. Another seven were completed after the war, with American approval, to carry out repatriation duties.

Japanese ASW Escort Weapons and Sensors

The principal weapon of a World War II antisubmarine ship was the depth charge. IJN ASW ships had two ways of deploying these weapons. The most common method was by stern racks, which allowed the depth charges to be rolled off the ship into the water. The second method was by projectors

ABOVE LEFT
The Ukuru class was further simplified which led to the Type C escort design. These ships were smaller, lighter, and had an even more simplified hull design and used electric welding to speed production. This is *CD-1* in March 1944 shortly after being commissioned. The Type C units can be distinguished from the Ukuru class by their stubbier hulls, lower stacks, and by the single 4.7-inch gun aft which replaced the earlier class's twin mount. *CD-1* was sunk on April 6, 1945 off Amoy, China, by USAAF B-25 medium bombers. (Yamato Museum)

ABOVE RIGHT
CD-17 pictured on April 10, 1944 days before her commissioning. Note the Type 22 radar on the ship's foremast. Beginning with *CD-21*, two twin 25mm mounts were fitted abreast the bridge and two single 25mm guns added. Later units also received a Type 13 radar on their mainmast. *CD-17* was sunk on January 12 by Task Force 38 aircraft off the coast of French Indochina. The ship was hit by three torpedoes and sank with 159 crewmen. (Yamato Museum)

PREVIOUS PAGE
Type D escorts maintained the basic configuration and armament of Type C units, but used turbines for propulsion. This necessitated that the stack be moved. This is *CD-2* on February 26, 1944, running trials before being commissioned. Note the difference from Type C units, with a smaller stack placed amidships and the searchlight further aft. *CD-2* was damaged by carrier air attack on July 30 and not repaired before the end of the war. She was scrapped in 1948. (Yamato Museum)

which were arranged on the ship's side and could throw the depth charge some distance away from the ship. The standard IJN device to do this was the Type 94 depth charge thrower. It could be used as a single or double-sided projector. When used with the Type 95 depth charge, the range was 245 feet if fired on both sides or 345 feet if fired from one. Once deployed in the water, the depth charges would sink to a pre-set depth and explode. Precision was key since a charge had to be within 20 feet of a submarine to create fatal damage and within 50 to 60 feet to cause any damage.

One of the salient weaknesses of IJN early-war ASW efforts was the lack of a capable depth charge. The standard prewar weapon was the Type 95 depth charge. The weapon had a 220-pound charge, fairly standard for the period, but critically had settings for only 98, 197, and 295 feet. This was a critical weakness because the maximum diving depth for most USN fleet submarines was 400 feet, and American submarine skippers soon learned that if they went deep, they might experience discomfort from a depth charge attack, but that they were safe from damage. Later versions of the Type 95 featured a larger explosive charge and a faster sinking rate.

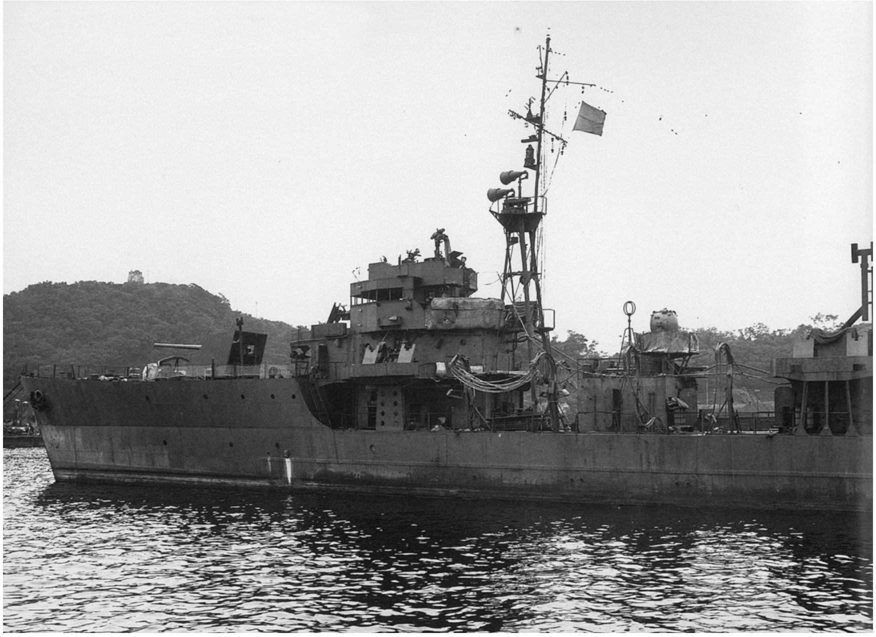
The ability of American submarines to evade damage simply by going deep leaked out during the war in the American press, but there is no evidence that the Japanese picked up on this and modified their depth charges accordingly. However, by 1943–44, the Type 2 depth charge had been introduced. This had the principal advantage of being able to be set for the additional depths of 394 and 492 feet.

IJN Depth Charges

	Type 95	Type 95 Mod 1	Type 95 Mod 2	Type 2	Type 2 Mod 1	Type 2 Mod 2
Adopted	1937	1940	1942	1942	1942	1942
Explosive Charge	220 pounds	330 pounds	242 pounds	220 pounds	330 pounds	242 pounds
Sinking Velocity	6.2 feet per second	8.5 feet per second	6.6 feet per second	6.2 feet per second	8.9 feet per second	6.6 feet per second
Depth Settings	98, 197, 295 feet	98, 197, 295 feet	98, 197, 295 feet	98, 197, 295, 394, 492 feet	98, 197, 295, 394, 492 feet	98, 197, 295, 394, 492 feet

In addition to depth charges, Japanese guns up through 6 inches were provided with antisubmarine shells. There was also an 80mm mortar adopted from the Army weapon which was carried on all *kaibokan*. This was the only way to engage targets ahead of the escort. It fired a small shell and was totally inadequate for its purpose. The lack of a forward-throwing ASW weapon, comparable to the USN's "Hedgehog," was a critical shortcoming since it meant that submarines could only be engaged with side-thrown and stern-dropped weapons which were released only after the escort had lost sonar contact. In comparison, USN ASW escorts could employ forward-thrown antisubmarine weapons more precisely since they still had sonar contact with the target.

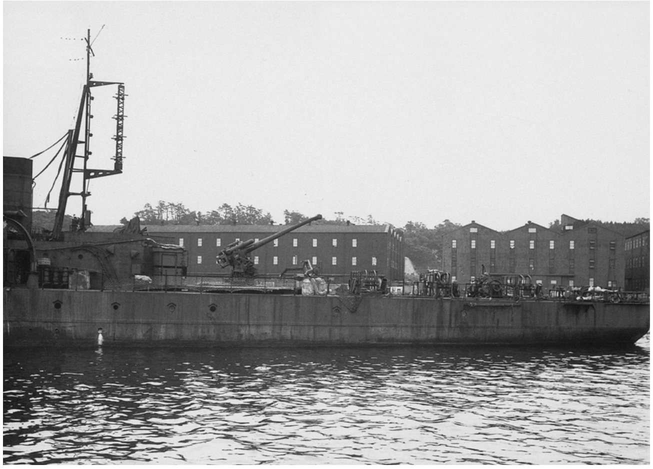
On top of their problems with inadequate depth charges, IJN ASW escorts were equipped with mediocre sensors. Most ships were equipped with both passive and active sensors to detect submarines. The passive sensor was the Type 93 Hydrophone. This was adopted in 1935 and had 16 elliptical arrays. The sensitivity of the array was 35 decibels and range was limited to 1,000 yards under normal conditions.



This is Ukuru-class escort *Shisaka* on September 13, 1945 immediately after the conclusion of the war. The ship has been partially disarmed with the removal of all 25mm guns; this view does show the forward 4.7-inch gun and the twin-horned Type 22 radar on the foremast. (*Ships of the World* Magazine)

The active sensor, or sonar, came in two main variants. The Type 93 was adopted in 1933 for destroyer use and was later fitted to most ASW escorts. The latest version was the Mod 3, which completed development in April 1942. It used a quartz projector for both transmission and reception. It had a maximum theoretical range of just over 6,500 yards, but this was subject to a number of environmental factors which usually resulted in a much shorter effective range. The range also decreased if the ship using the sonar was moving at a higher speed. A wartime report from *CD-22* indicated that detection ranges for an enemy submarine moving at 7.5 knots was 4,592 yards if the ship's speed was 0 knots, 3,280 yards if the escort was moving at 12 knots, and only 1,968 yards if the ship was moving at 14 knots. The Type 93 had a bearing accuracy of +3 degrees. In 1943, work began on a new sonar which was based on a German design. The Type 3 Sonar Model 1 was not introduced until late 1944 and became the standard antisubmarine sensor for the IJN's late-war escorts. It possessed the same maximum range as the Type 93, but a better bearing accuracy. Overall, the quality of Japanese sonars was rudimentary.

This photograph shows the aft portion of escort *Shisaka* after her surrender. Note the large Type 13 air search radar on the mainmast, which had an effective range of some 60 miles against a large group of aircraft. The single 4.7-inch gun aft was capable of engaging air and surface targets, but with no fire control equipment for air targets, its utility as an antiaircraft weapon was marginal. On the quarterdeck are three depth charge launchers; the ship had a capacity of 120 depth charges. (*Ships of the World* Magazine)



Other weapons aboard IJN ASW escorts included the 4.7-inch/45 3rd Year (1914) gun for engaging surface targets. It had a range of 17,500 yards and fired a 45-pound shell. It was adequate for its purpose but was not a dual-purpose weapon. The same cannot be said for the Type 96 25mm antiaircraft gun. This weapon was first introduced as a twin mount, and later as a triple. As the standard IJN antiaircraft weapon it proved a failure because of its low training and elevating speed, small round (8.8 ounces), excessive muzzle blast which affected accuracy, and slow rate of fire created by the need to constantly replace a 15-round magazine. When fitted on a *kaibokan*, no fire control device was provided so guidance was done through an iron sight and tracers. Later in the war, the lack of adequate antiaircraft protection exposed the *kaibokan*'s severe vulnerability to air attack.

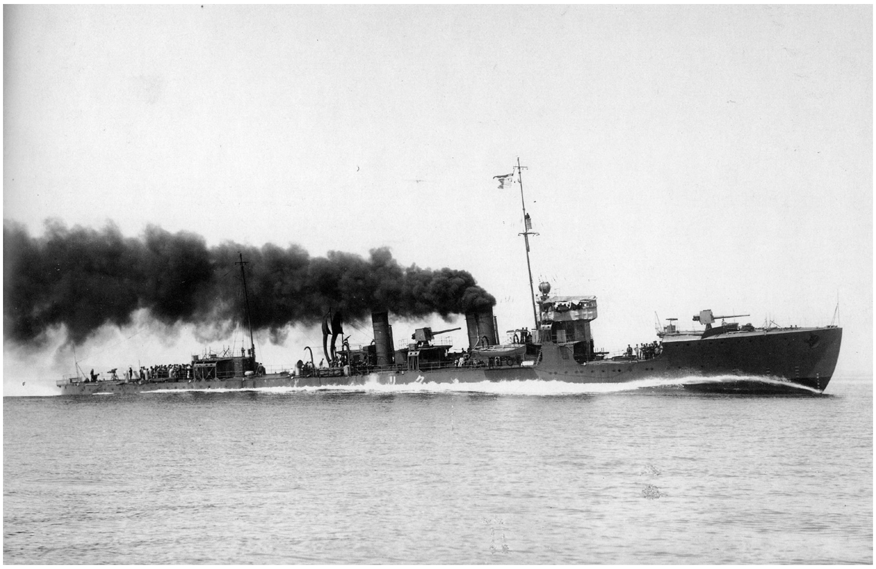
THE ASW ESCORT CLASSES

Momi Class

Design and Construction

In its early period, the IJN traditionally built two types of destroyers. First-class destroyers were larger and were suitable for fleet escort duties, while second-class ships were less seaworthy and primarily designed for operations in littoral waters. In the early 1920s, the IJN came up with a first-class destroyer, the Minekaze class, which was suitable for operations in heavy seas by use of a turtle-back forecastle, with the forward torpedo mount placed in a well directly behind it and the main gun battery placed as high as possible along the centerline so that they could be serviced in heavy weather. The second-class counterpart to the Minekaze class was the Momi class, with 21 built between 1920 and 1922. The second-class destroyer concept fell out of favor in the mid-1920s because of the greater capabilities offered by fleet destroyers.

The Momi class featured a heavy armament – three 4.7-inch/45 guns and four 21-inch torpedo tubes – and a high speed (36 knots) on a small hull of 850 tons. This approximated the weaponry aboard a Minekaze class destroyer. By the time of the Pacific War, the Momi class was reaching the end of its service life. Four ships had been retired, five converted into tenders, and another nine were converted into patrol boats. Only three destroyers were still in service.



Second-class destroyer *Kuri* pictured here on trials in April 1920; note the absence of torpedo tubes and the aftermost 4.7-inch gun which have not been fitted at the time of this photograph. This view shows the basic design of these Momi-class ships. *Kuri* survived the war to be sunk on October 8, 1945 off Pusan, Korea while conducting minesweeping duties. (Yamato Museum)

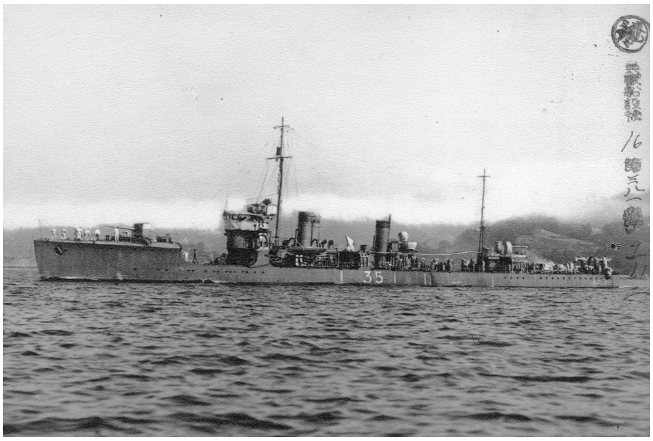
Momi Class Construction					
Units serving as Destroyers					
Ship	**Builder**	**Laid down**	**Launched**	**Commissioned**	**Fate**
Tsuga	Ishikawajima	March 5, 1919	April 17, 1920	June 20, 1920	Sunk by USN carrier attack January 15, 1945
Hasu	Uraga	March 2, 1921	December 8, 1921	July 31, 1922	Scrapped 1948
Kuri	Kure Navy Yard	December 5, 1919	March 19, 1920	April 30, 1920	Sunk by mine October 8, 1945
Units serving as Patrol Boats					
Patrol Boat 31 (ex-Kiku)	Kawasaki, Kobe	January 20, 1920	October 13, 1920	December 10, 1920	Sunk by USN carrier aircraft March 30, 1944
Patrol Boat 32 (ex-Aoi)	Kawasaki, Kobe	April 1, 1920	December 10, 1920	December 10, 1920	Lost at Wake Island December 23, 1941
Patrol Boat 33 (ex-Hagi)	Uraga	February 28, 1920	October 29, 1920	April 20, 1921	Lost at Wake Island December 23, 1941
Patrol Boat 34 (ex-Susuki)	Ishikawajima	May 3, 1920	February 21, 1921	May 25, 1921	Sunk by air attack July 3, 1944
Patrol Boat 35 (ex-Tsuta)	Kawasaki, Kobe	October 16, 1920	May 9, 1921	June 30, 1921	Sunk by USAAF aircraft September 2, 1942
Patrol Boat 36 (ex-Fuji)	Fujinagata	December 6, 1919	November 27, 1920	May 31, 1921	Scrapped 1947
Patrol Boat 37 (ex-Hishi)	Uraga	November 10, 1920	May 9, 1921	March 23, 1922	Sunk by USN destroyers January 24, 1942
Patrol Boat 38 (ex-Ashi)	Ishikawajima	February 26, 1921	March 14, 1922	August 19, 1922	Sunk by USN submarine *Atule* November 25, 1944
Patrol Boat 39 (ex-Tade)	Fujinagata	December 20, 1920	March 15, 1921	July 31, 1922	Sunk by USN submarine *Seawolf* April 23, 1943

Armament and Modifications

When completed as destroyers, this class was fitted with three 4.7-inch/45 single guns, two twin 21-inch torpedo launchers, and two 7.7mm machine guns for antiaircraft protection. These were the first IJN second-class destroyers fitted with 21-inch torpedo tubes.

During the war, efforts were made to increase the ships' ASW and antiaircraft capabilities. The minesweeping gear on the stern was removed and storage for 36 to 48 depth charges and four depth charge launchers was added. One of the 4.7-inch guns was removed and replaced with two triple 25mm guns. Some ships received the Type 13 air search radar on their foremast.

Each of the nine ships converted to patrol boats in 1940 had one boiler removed, which cut the ship's maximum speed to 18 knots. The armament was reduced, with both torpedo mounts and the amidships 4.7-inch gun being removed, and one twin 25mm mount was added in its place. The minesweeping gear aft was exchanged for storage space for 36 depth charges and three depth charge launchers. In 1941–42, these ships were modified again to carry up to 150 troops and a single landing craft which was launched over the stern by means of a sloping deck.


The increasing age and obsolescence of the Momi class prompted the IJN to take most of them out of service as destroyers and convert them to patrol boats. This is *Patrol Boat 35*, formerly destroyer *Tsuta* in 1940 immediately following her conversion. Note that the torpedo mounts have been removed as well as the amidships 4.7-inch gun. Minesweeping gear has been fitted on the stern. After an active career as an amphibious transport early in the war, *Patrol Boat 35* was sunk in the Solomons on September 2, 1942 by USAAF B-17 bombers, with the loss of 92 crewmen. (Yamato Museum)

War Service

The three remaining destroyers were used as escorts primarily along the Chinese coast. *Tsuga* did operate with the main fleet on one occasion when she escorted the Combined Fleet's supply train at the Battle of the Philippine Sea in June 1944. *Hasu* survived the war and was used for repatriation duties, and *Kuri* was also surrendered but was sunk by a mine while on postwar minesweeping duties.

The saga of the patrol boats is more interesting since the eight that were converted into landing ships were very active during the initial period of the war. All eight were employed during the campaign to seize the Dutch East Indies where one was sunk by USN destroyers. Two more were expended getting the Japanese invasion force ashore on Wake Island on December 23. Two were part of the Midway operation and four saw action in the Solomons. Only two were eventually returned to escort duties and only one survived the war.

Momi Class Specifications (as completed as destroyers)	
Displacement	850 tons standard displacement; 1,020 tons full load
Dimensions	Length 280ft waterline; Beam 26ft; Draft 8ft
Speed	36kts
Range	3,000nm at 15kts
Crew	110

Wakatake Class

Design and Construction

These ships were the last second-class destroyers built by the IJN. Thirteen were planned, but only eight were completed. Construction stopped when it was apparent that the larger destroyers under construction offered much

A

THE SECOND-CLASS DESTROYERS AND TORPEDO BOATS

This plate features the IJN's Wakatake class of second-class destroyers and the two classes of torpedo boats. At the start of the war, old destroyers and the IJN's force of 12 torpedo boats formed the core of Japan's convoy escort force.

1: This shows *Asagao* in her 1944 configuration. *Asagao* was a Wakatake-class destroyer and is representative of all Momi and Wakatake class ships which survived until late in the war. This ship's late-war configuration shows that the forward twin torpedo mount has been removed, but that the torpedo mount abaft the aft stack remains. The aftermost 4.7-inch gun is also missing, replaced by a twin 25mm mount. Another three 25mm guns are visible and a twin 13mm mount has been fitted in front of the bridge. A depth charge launcher is evident on the stern. *Asagao* was fitted with a Type 13 radar on the foremast abaft the bridge.

2: This depicts torpedo boat *Chidori* in her early war configuration. This was a ship of the Tomozuru class and could be identified by the three 4.7-inch guns with small shields and a twin torpedo mount amidships. The ship retains her minesweeping gear aft and has a single Type 94 depth charge launcher.

3: This shows torpedo boat *Otori* in her late-war configuration. By 1944 this ship featured an enhanced antiaircraft and ASW suite. The aft 4.7-inch gun has been removed and there are now two depth charge launchers on the stern. The antiaircraft fit has been increased to three twin and several single 25mm mounts, but this did not provide adequate protection when the ship was attacked and sunk by USN carrier aircraft in June 1944 180 miles northwest of Saipan. *Otori* carried a Type 22 radar abaft the bridge and a Type 13 radar on the foremast. The Otori class can be distinguished from the earlier Tomozuru class by the different shape of the 4.7-inch gun shields and the triple 21-inch torpedo mount fitted with a shield.

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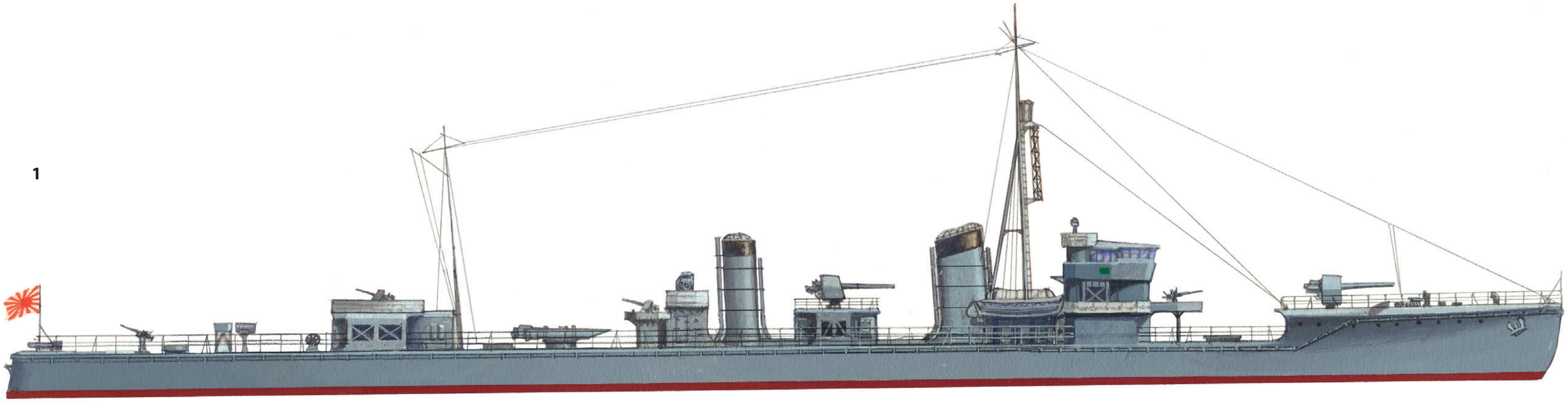

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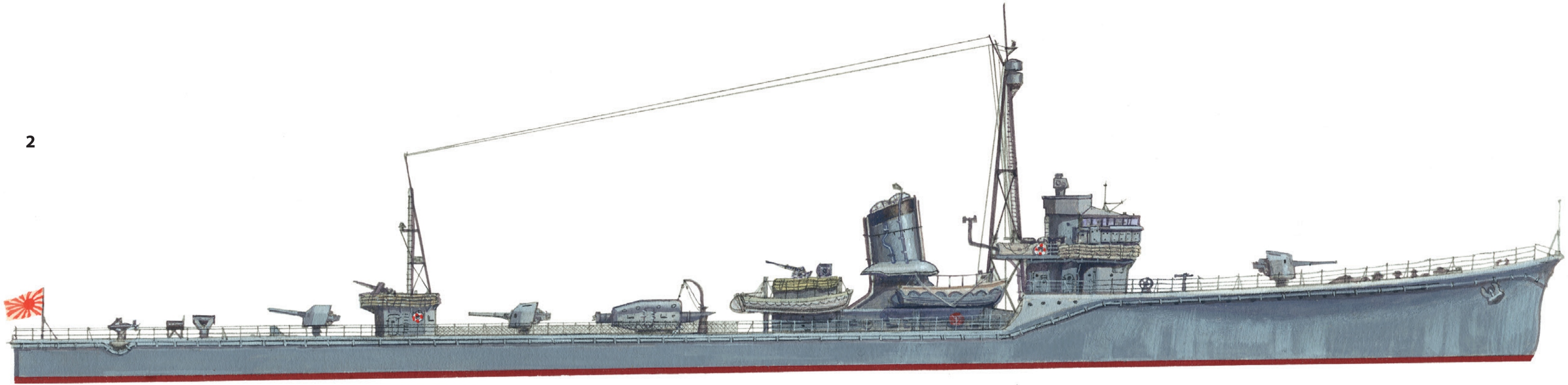

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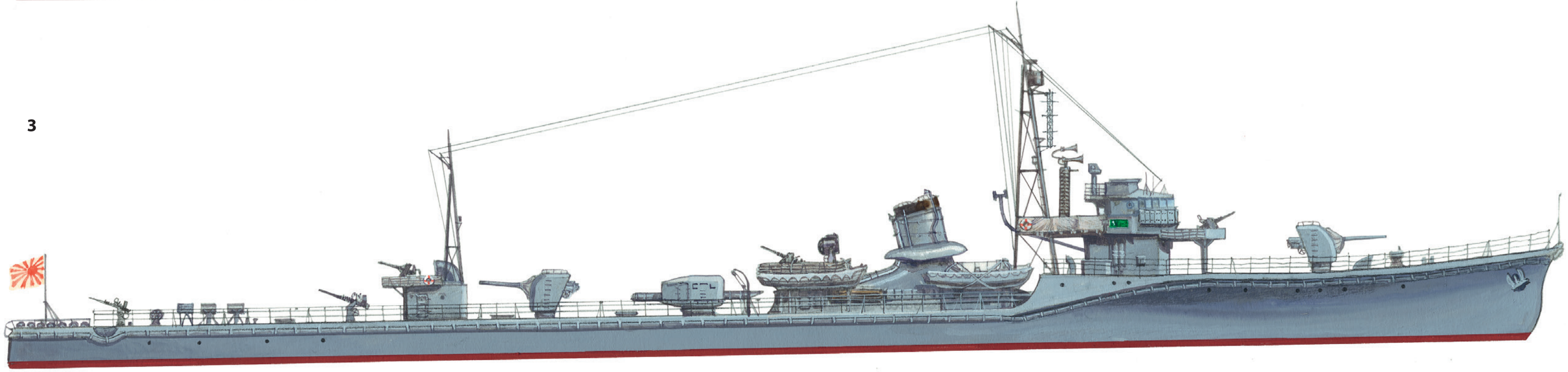
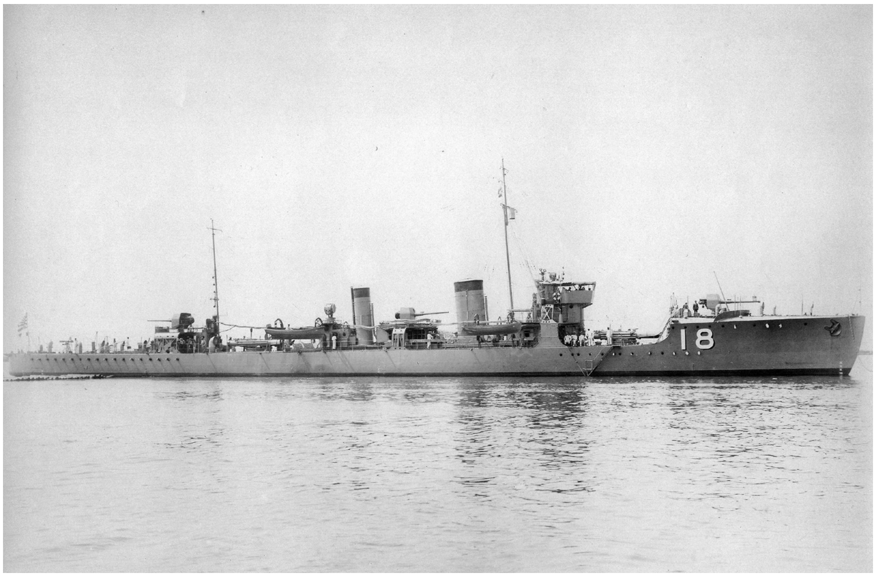




Karukaya was a Wakatake-class second-class destroyer. Externally, the Momi and Wakatake classes were identical. This fine view shows the turtleback forward section, the well in front of the bridge structure and its twin torpedo mount, and the placement of the three 4.7-inch guns. *Karukaya* was sunk on May 10, 1944 by two torpedoes from USN submarine *Cod* 150nm northwest of Manila. Seventy-three of her crew did not survive. (Yamato Museum)

more capability. The only difference from the Momi class was 50 tons of additional displacement, which created a deeper draft to improve sea keeping in heavy seas. By the time of the Pacific War, only six of the class remained as destroyers. One was wrecked in 1932 and another converted into a patrol boat in 1940.

Wakatake Class Construction

Ship	Builder	Laid down	Launched	Commissioned	Fate
Wakatake	Kawasaki Shipyard	December 13, 1921	July 24, 1922	September 30, 1922	Sunk by USN carrier aircraft March 30, 1944
Kuretake	Maizuru Navy Yard	March 15, 1922	October 21, 1922	December 21, 1922	Sunk by USN submarine *Razorback* December 30, 1944
Sanae	Uraga	April 5, 1922	February 15, 1923	November 5, 1923	Sunk by USN submarine *Bluefish* November 18, 1943
Sawarabi	Uraga	November 20, 1922	September 1, 1923	July 24, 1924	Capsized 1932
Asagao	Ishikawajima	March 14, 1922	November 4, 1922	May 10, 1923	Sunk by mine August 22, 1945
Yugao	Ishikawajima	May 15, 1922	April 14, 1923	May 31, 1924	Designated *Patrol Boat 46* in 1940; sunk by USN submarine *Greenling* November 10, 1944
Fuyo	Fujinagata	February 16, 1922	September 23, 1922	March 16, 1923	Sunk by USN submarine *Puffer* February 5, 1944
Karukaya	Fujinagata	May 16, 1922	March 19, 1923	August 20, 1923	Sunk by USN submarine *Cod* May 10, 1944

Armament and Modifications

Original armament was identical to that of the Momi class – three 4.7-inch/45 single guns, two twin 21-inch torpedo tubes, and two 7.7mm machine guns for antiaircraft protection.

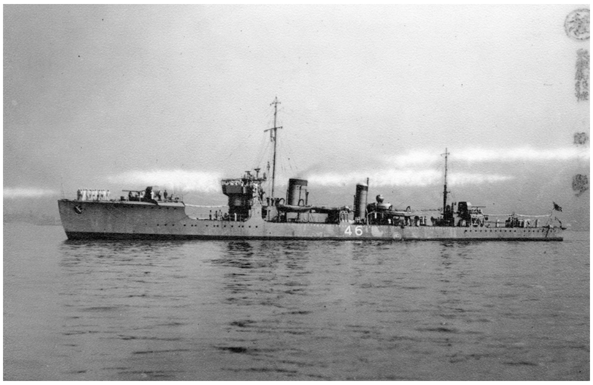
Wartime modifications were similar to those carried out on the Momi class. The minesweeping gear on the stern was removed and storage created for 36 to 48 depth charges, and four depth charge launchers were added. One of the 4.7-inch guns was removed and replaced with two triple 25mm guns.

OPPOSITE
Chidori, a Tomozuru-class torpedo boat, is shown here in June 1934 after being rebuilt. Prewar marking for IJN small combatants included their name on the hull amidships and their parent division on the bow. After reconstruction, *Chidori* was fitted with three 4.7-inch guns and a twin torpedo mount. These ships were well suited as ASW escorts because of their armament, speed, and maneuverability. *Chidori* was sunk by USN submarine *Tilefish* off Yokosuka, Japan in December 24, 1944. (Yamato Museum)

Some ships had six 25mm guns in three twin mounts and two additional single 25mm guns. At least *Asagao* had one of her torpedo mounts removed. Some ships received the Type 13 air search radar on their foremast. One Wakatake-class ship was converted to a patrol boat in the same manner as Momi-class ships.

War Service

These ships saw extensive service in China before the opening of the Pacific War since their shallow draft made them well suited for operations in coastal waters and on rivers. The six remaining units still designated as destroyers were seen as second-class units suitable only for escort and patrol operations. Three ships were assigned to Destroyer Division 13, which patrolled the Inland Sea and the Bungo Strait, and the other three to Destroyer Division 32, which was assigned to patrol the Tsushima Strait. Subsequently, these ships were assigned to escort convoys primarily in the South China Sea, but also on occasion as far east as Palau. In this capacity, they were continually occupied and *Karukaya* escorted a record 54 convoys before her loss. As ASW ships, they had no success against USN submarines; in exchange, four of the class were lost to submarine attack.



Patrol Boat 46 was the only Wakatake-class destroyer converted into a patrol boat. The former *Yugao* is seen here in 1940 after conversion. Patrol boat conversions featured a reduced armament and also the removal of one boiler, bringing the ships' top speed down to 18 knots. As such, they were still suited as ASW escorts. *Patrol Boat 46* was lost on November 10, 1944 when she was torpedoed by USN submarine *Greenling* off Japan. (Yamato Museum)

Wakatake Class Specifications (as completed)	
Displacement	900 tons standard displacement; 1,100 tons full load
Dimensions	Length 280ft waterline; Beam 26ft 6in; Draft 8ft 3in
Speed	35.5kts
Range	3,000nm at 15kts
Crew	110

Tomozuru Class

Design and Construction

These ships were considered torpedo boats by the IJN but were actually designed to be small destroyers in speed and armament. The four ships were ordered as part of the 1931 building plan and represented another IJN attempt to avoid existing naval treaty limitations. This time the Japanese planned to place a near-destroyer armament of three 5-inch guns and four torpedo tubes on a planned hull of 535 tons. Two turbines provided enough power for a top speed of 30 knots. Not surprisingly, the design was severely top-heavy and therefore unstable, and on March 12, 1934 the lead ship of the class capsized in a storm. *Tomozuru* was towed back to port, keel up, and an investigation of the accident was begun.

Studies after the disaster confirmed the faulty design of this class and several

others built during this period. This prompted a major rebuilding program for many of the IJN's most modern ships. For the Tomozuru class this meant the removal of the 5-inch guns in favor of single 4.7-inch mounts and the deletion of one of the twin torpedo mounts to save weight. The increase in tonnage, caused mainly by the addition of some 100 tons of ballast, meant the top speed was reduced to 28 knots.

Tomozuru Class Construction

Ship	Builder	Laid down	Launched	Commissioned	Fate
Tomozuru	Maizuru Navy Yard	October 11, 1932	October 1, 1933	February 24, 1934	Sunk by USN carrier aircraft March 24, 1945
Chidori	Maizuru Navy Yard	October 13, 1931	April 1, 1933	November 20, 1933	Sunk by USN submarine *Tilefish* December 24, 1944
Manazuru	Fujinagata	December 22, 1931	July 11, 1933	January 31, 1934	Sunk by USN carrier aircraft March 1, 1945
Hatsukari	Fujinagata	April 6, 1933	December 19, 1933	July 15, 1934	Scrapped 1946

Armament and Modifications

Following reconstruction, the class mounted three 4.7-inch guns, all in single mounts. One twin 21-inch torpedo mount was retained. Antiaircraft protection was offered by a single paltry 12.7mm machine gun; one Type 94 depth charge launcher was also fitted.

By 1944, the units had one 4.7-inch gun removed but retained the twin torpedo mount. The antiaircraft fit was increased to a twin 25mm mount in front of the bridge, a second twin mount on the aft deck house, and six single 25mm mounts. ASW capability was increased by expanding the depth charge load to 48 and adding two stern racks and eight Type 81 depth charge launchers on the stern.

War Service

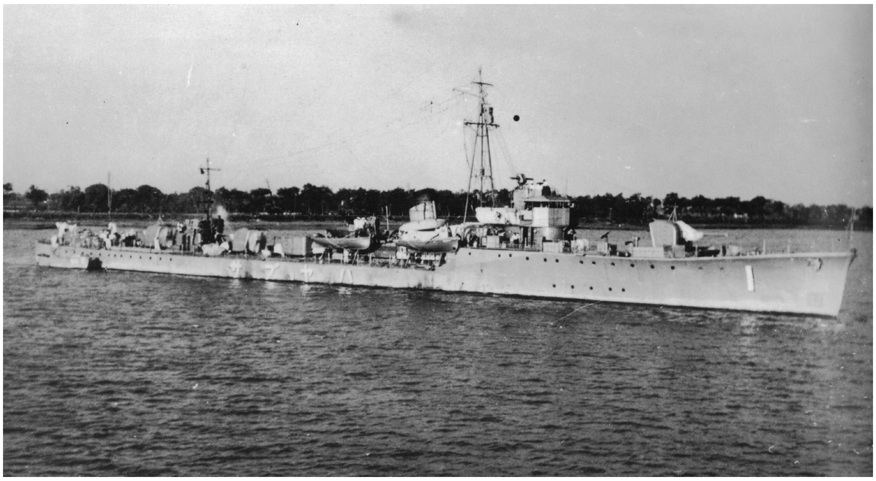
With their small draft, these ships saw heavy service off the coast of China before the opening of the Pacific War. During the first part of the war, they were active off the Philippines. From 1942, these ships spent the remainder of the war on convoy escort duties. They proved to be good ASW escorts with their high speed, good handling, and adequate armament. USN submarine commanders considered IJN torpedo boats to be among the best of Japanese ASW escorts. Only one ship survived the war.

Tomozuru Class Specifications (as built)	
Displacement	651 tons standard displacement; 737 tons full load
Dimensions	Length 269ft overall; Beam 24ft 3in; Draft 8ft 2in
Speed	30kts
Range	9,000nm at 10kts
Crew	113 (as built)

Otori Class

Design and Construction

Sixteen of these ships were ordered as part of the 1934 building program and incorporated the modifications made on the Tomozuru class. Only eight units were completed by 1937, with the next eight canceled in favor of building submarine chasers. Benefiting from the unfortunate experience of the Tomozuru



The follow-on to the Tomozuru-class torpedo boats was the slightly larger Otori class. This is *Hayabusa* in August 1937. This class can be distinguished from the preceding class by the different type of shields provided for the 4.7-inch guns and a longer hull. *Hayabusa* served well until September 24, 1944 when she was sunk by USN carrier aircraft south of Mindoro Island in the Philippines. (Yamato Museum)

class, these ships were built with a reduced armament, a smaller bridge structure, and a larger hull with an increased beam. A 30-knot maximum speed was retained by fitting much more powerful machinery.

Otori Class Construction

Ship	Builder	Laid down	Launched	Commissioned	Fate
Otori	Maizuru Navy Yard	November 8, 1934	April 25, 1935	October 10, 1936	Sunk by USN carrier aircraft June 12, 1944
Kasasagi	Osaka Iron Works	March 4, 1935	October 28, 1935	January 15, 1937	Sunk by USN submarine *Bluefin* September 26, 1943
Hiyodori	Ishikawajima	November 26, 1934	October 25, 1935	December 20, 1936	Sunk by USN submarine *Gunnel* November 17, 1944
Hayabusa	Yokohama Dockyard	December 19, 1934	October 28, 1935	December 7, 1936	Sunk by USN carrier aircraft September 24, 1944
Hato	Ishikawajima	May 28, 1936	January 25, 1937	August 7, 1937	Sunk by USN carrier aircraft October 16, 1944
Sagi	Harima	May 20, 1936	January 30, 1937	July 31, 1937	Sunk by USN submarine *Gunnel* November 8, 1944
Kari	Mitsubishi, Yokohama	May 11, 1936	January 20, 1937	September 20, 1937	Sunk by USN submarine *Baya* July 16, 1945
Kiji	Tama, Okayama	October 24, 1935	January 26, 1937	July 31, 1937	To Russia 1947

Armament and Modifications

These ships were completed with the same basic weapons fit as found on the rebuilt Tomozuru-class units. Three single 4.7-inch guns with improved shields and an elevation of 55 degrees, which allowed them to engage aircraft, were fitted. A triple torpedo mount was fitted and a single 40mm gun provided for antiaircraft protection. ASW weaponry was a single Type 94 depth charge launcher.

By 1944, surviving ships had their aftermost 4.7-inch gun removed and their antiaircraft fit increased to as many as three twin and five single mounts. ASW weaponry was increased to two stern racks and several depth change launchers and a total of 48 depth changes. Some ships received a Type 22 radar abaft the bridge and a Type 13 radar on the foremast.

War Service

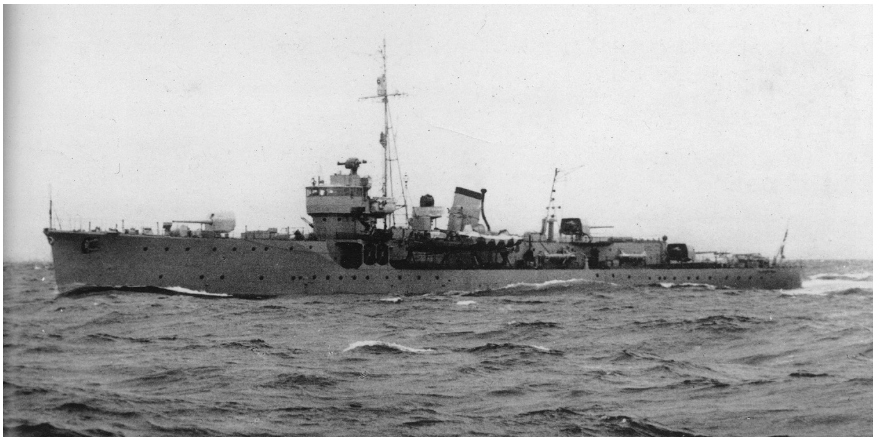
These ships saw extensive service from the start of the war, with most active escorting invasion convoys in the southern areas. Several were active in the Solomons, where *Hiyodori* sank USN submarine *Amberjack* off New Britain on February 16, 1943. Late in the war, seven of the eight ships of the class were sunk by submarines and carrier air attack while active in the Central Pacific and the South China Sea.

Otori Class Specifications	
Displacement	960 tons standard displacement; 1,040 tons full load
Dimensions	Length 290ft 4in overall; Beam 26ft 10in; Draft 9ft 1in
Speed	30.5kts
Range	4,000nm at 14kts
Crew	113 (as built)

Shimushu Class

Design and Construction

The origin of the Shimushu class can be traced back to the London Naval Treaty of 1930. This placed a tonnage limitation on the construction of destroyers, which the Japanese immediately looked for ways to circumvent. One way to create ships with some of the capabilities of destroyers was to use a loophole that permitted ships of between 600 and 2,000 tons, no more than four guns over 76mm, no torpedoes, and a maximum speed of no more than 20 knots. The IJN decided to take advantage of this loophole and build coastal defense (*kaibokan*) ships up to these specifications. However, budgetary reasons precluded building *kaibokan* until the Third Naval Armament Extension Program, which was approved in 1937. The original 1,200-ton ship was

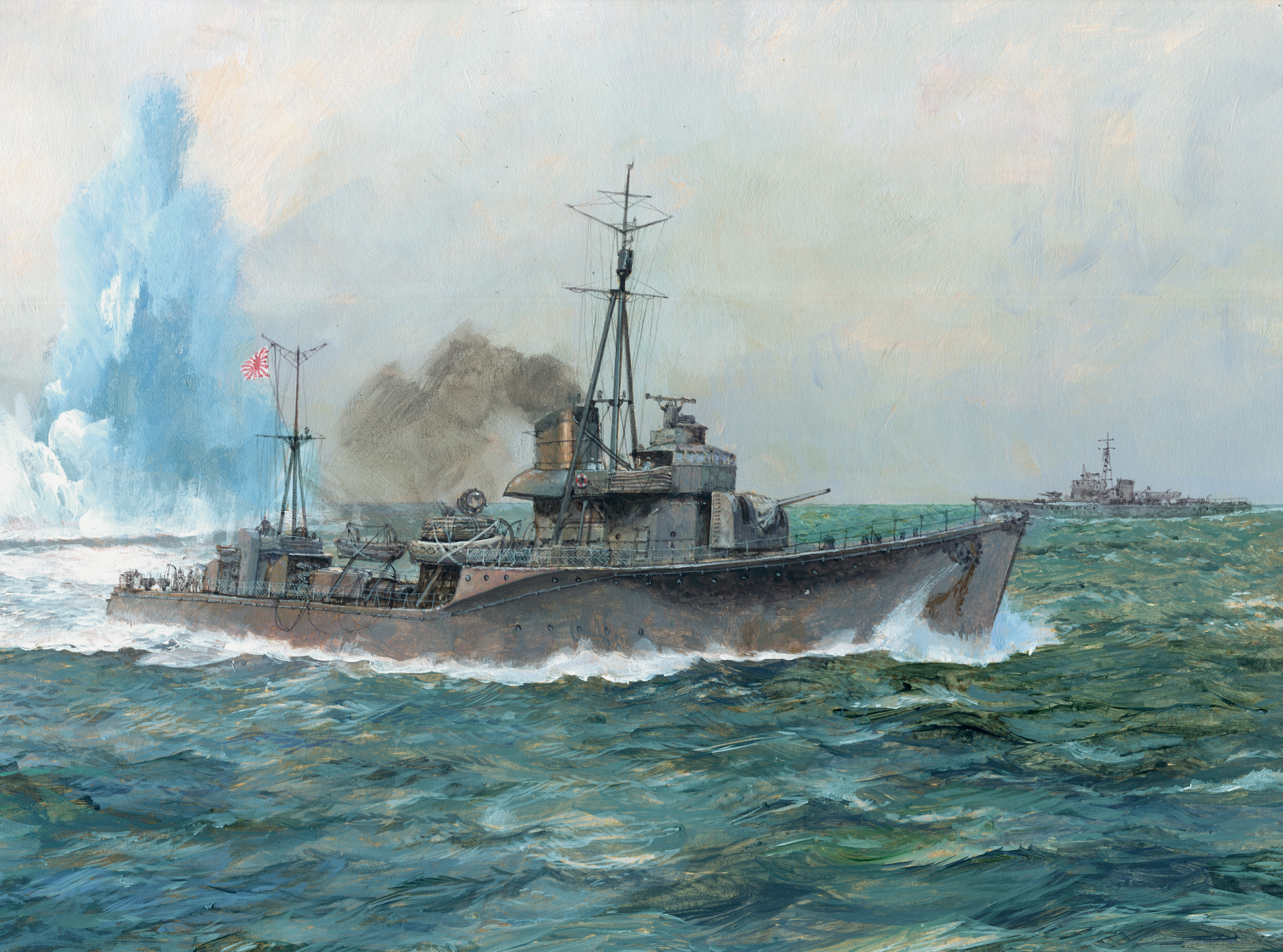


This photograph shows Shimushu-class escort *Hachijo* in March 1941. The fairly complex nature of her hull design can be seen, which made the class unsuitable for mass production. Note the range finder for the main battery on top of the bridge and the searchlight between the foremast and the single stack. Two paravanes for minesweeping are also evident on the side of the deck house. *Hachijo* served in relatively low-threat northern waters during the war which increased her chances of survival. She was scrapped in 1948. (Yamato Museum)

B

TORPEDO BOAT *HIYODORI* VERSUS *AMBERJACK*

The IJN's torpedo boats were considered formidable adversaries by USN submarine commanders. They were aggressively handled, had great acceleration, and carried a good depth charge load. Nevertheless, the only kill they recorded during the war was by *Hiyodori* off Cape St. George on New Britain on February 16, 1943. On this date submarine *Amberjack* was spotted by an aircraft of the IJN's 958th Air Group. *Hiyodori* and submarine chaser *CH-18* were called in for an attack beginning at 1540 hours. The ships dropped 18 depth charges. The Japanese reported that large amounts of oil and "parts of the hull" came to the surface. At 1620 hours, *Hiyodori* recovered a life raft with the inscription "Philadelphia Navy Yard." This marked the end of *Amberjack* and all 74 aboard. Note that *Hiyodori* is still in her early war configuration with three 4.7-inch single guns. Later in the war, the aftermost gun was removed in favor of an increased depth charge load and additional antiaircraft guns. *Hiyodori* was sunk in November 1944 by USN submarine *Gunnel* off Taiwan.



reduced to 860 tons, and the planned four 5-inch dual purpose guns were replaced by three 4.7-inch low-angle guns taken from old destroyers.

The primary role of these ships was patrol and fisheries protection in the Kurile Islands area; this would release destroyers from this mission so that they could be assigned higher priority missions. The secondary role was minesweeping, for which they were equipped with four paravanes. Convoy protection was a third priority.

The design work for what the IJN considered to be a major warship class (and thus given names, not numbers) was carried out for the first time in a private shipyard by Mitsubishi Heavy Industries. The IJN wanted a simple design, but Mitsubishi ended up with a more complex design from which prefabrication was not possible, which increased building times. The IJN approved this complex design because it did not care about such a low-priority program. This was to have unfortunate consequences when the Shimushu class became the basic design for ASW escorts and quick construction was essential.

In accordance with its primary mission, the hull emphasized structural strength and was insulated. A forecastle deck was included which aided seaworthiness. Machinery consisted of two diesel engines driving two shafts. Use of diesels gave the ships a superior range.

Shimushu Class Construction

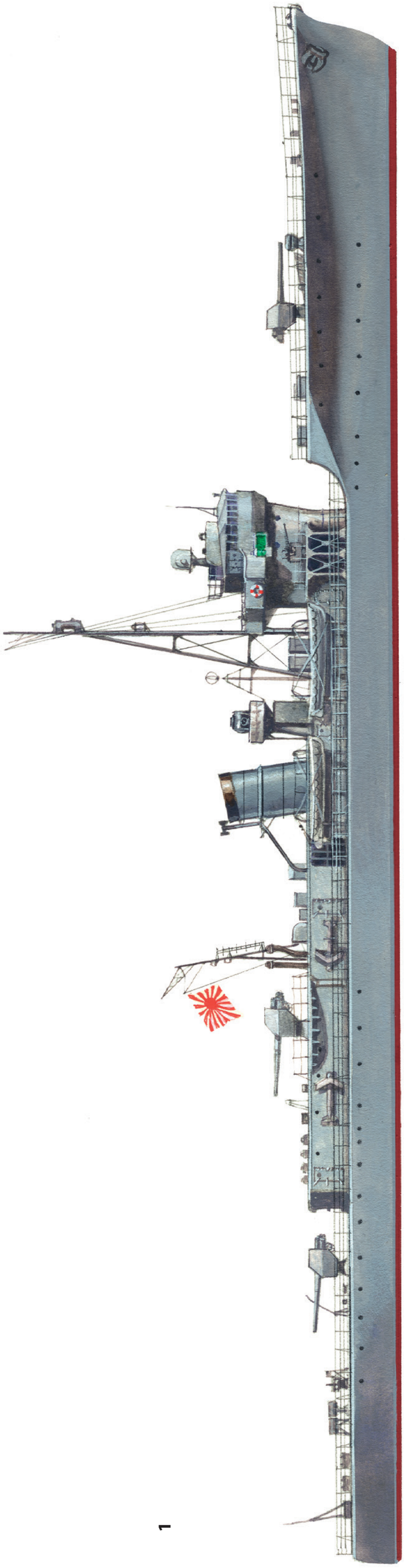
Ship	Builder	Laid down	Launched	Commissioned	Fate
Shimushu	Mitsui, Tamano	November 29, 1938	December 13, 1939	June 30, 1940	To Russia, 1947
Kunashiri	Tsurumi	March 1, 1939	May 6, 1940	October 3, 1940	Wrecked 1946 and scrapped
Hachijo	Sasebo Navy Yard	August 3, 1939	April 10, 1940	March 31, 1941	Scrapped, 1948
Ishigaki	Mitsui, Tamano	August 15, 1939	September 14, 1940	February 15, 1941	Sunk May 31, 1944 by USN submarine *Herring*

C

TYPE A ESCORTS

1: The IJN's first dedicated escort ships were the four ships of the *Shimushu* class. The top profile shows the lead ship in her 1941 configuration. The complex hull structure is suggested by the double-curved bow; this proved an issue when the IJN sought to mass produce similar ships. The ship is fairly well armed, with three 4.7-inch guns in single mounts and twin 25mm gun mounts abreast the bridge. The ship carried two paravanes on each beam to allow it to perform minesweeping duties. Note the depth charge launcher on the stern which confirms that one of the ship's missions was ASW. Later in the war, ships of this class received three additional triple 25mm mounts (two abaft the stack and one forward of the bridge), radars on both masts, and stern racks for depth charges. *Shimushu* had a busy wartime career but survived the conflict and was used in repatriation duties before being handed over to the Soviets in 1947.

2 & 3: The middle and bottom drawings depict *Etorofu* in her late-war (1944) configuration. The ship was the lead unit in a 14-ship class which was a simplified version of the Shimushu class. Note the simplified hull form and bridge structure. The layout of the armament was similar to that of the previous escort class with three single 4.7-inch guns. The augmented antiaircraft suite is evident in these views, with a triple 25mm on a bandstand in front of the bridge and two more triple 25mm mounts abaft the stack. ASW weaponry has been augmented with an 80mm mortar on the forward edge of the bridge structure and two stern racks for depth charges. Note the Type 22 radar on the foremast and the Type 13 radar on the mainmast. *Etorofu* also had an active career, but did not record a kill of a submarine. The closest she came to success was on August 11, 1943 when she encountered a surfaced submarine off Manila, engaged it with gunfire, forced it to submerge, and then dropped depth charges – but the submarine escaped. *Etorofu* survived the war and was assigned repatriation duties and was given to the United States as war reparations.



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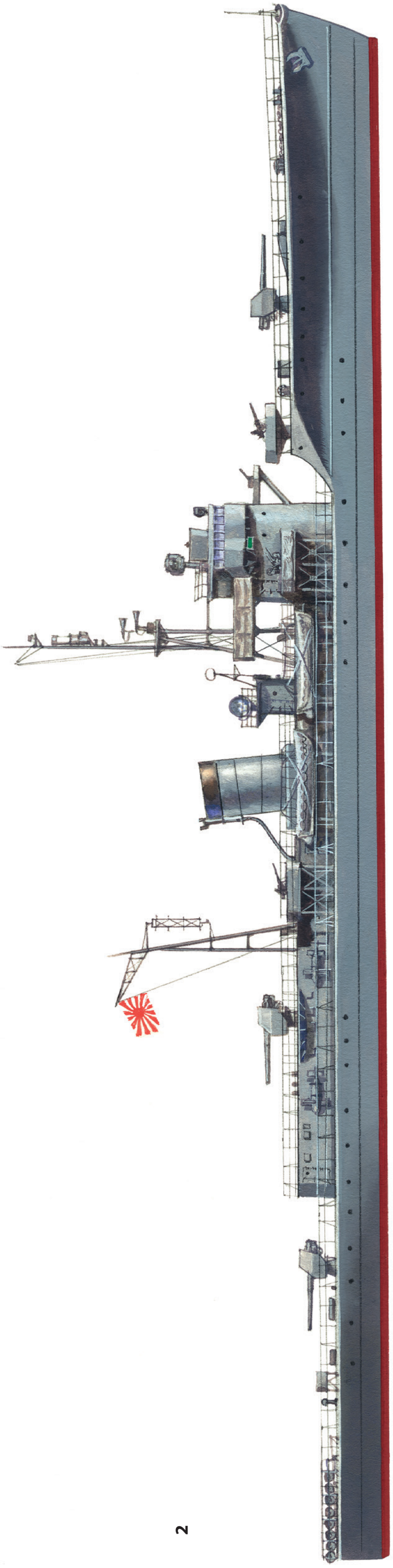

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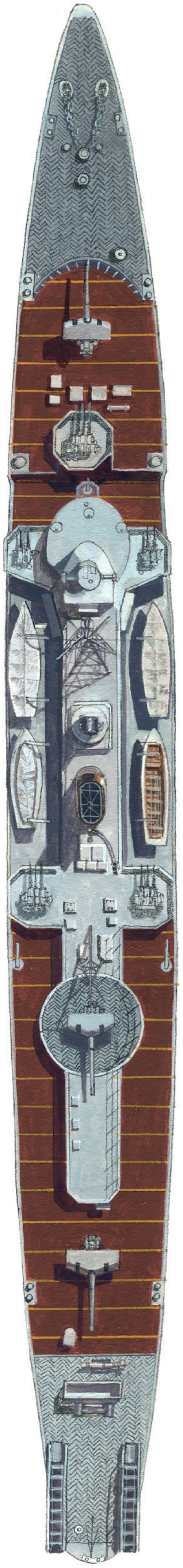

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Armament and Modifications

The main battery consisted of three centerline-mounted 4.7-inch Year 3 single mounts which were only capable of engaging surface targets. Antiaircraft protection was provided by two twin 25mm mounts abreast the bridge. One depth charge launcher was fitted aft on the quarterdeck and 18 Type 95 depth charges carried. When completed, the ships did not carry hydrophones or sonar.

In 1942, Type 93 sonar was installed and the number of depth charges carried increased to 36. In 1943, the depth charge load was increased to 60. Type 22 radar, primarily used for surface search, was also fitted. An 80mm mortar was also fitted forward of the bridge. In 1944, the need to increase the ships' antiaircraft strength became urgent. Late in the year, a Type 13 air search radar was fitted to the mainmast. The original 25mm fit was increased from two twin mounts to five triple mounts, with the replacement of the original mounts located abreast the bridge and the addition of a triple mount forward of the bridge and two more abaft the stack.

War Service

Shimushu spent her career in southern waters on escort duties. On November 25, 1944, she was torpedoed and damaged by USN submarine *Haddo*. She returned to service with a simplified bow. After the war, she was used in repatriation duties until 1947, when she was handed over to the Soviets and remained in service until 1959. *Ishigaki* served in the North Pacific until early 1944. She was credited with the destruction of USN submarine *S-44* before being sunk by USN submarine *Herring* on May 31, 1944 with the loss of most of her crew. *Hachijo* and *Kunashiri* operated in the North Pacific for the entire war and both survived the conflict.

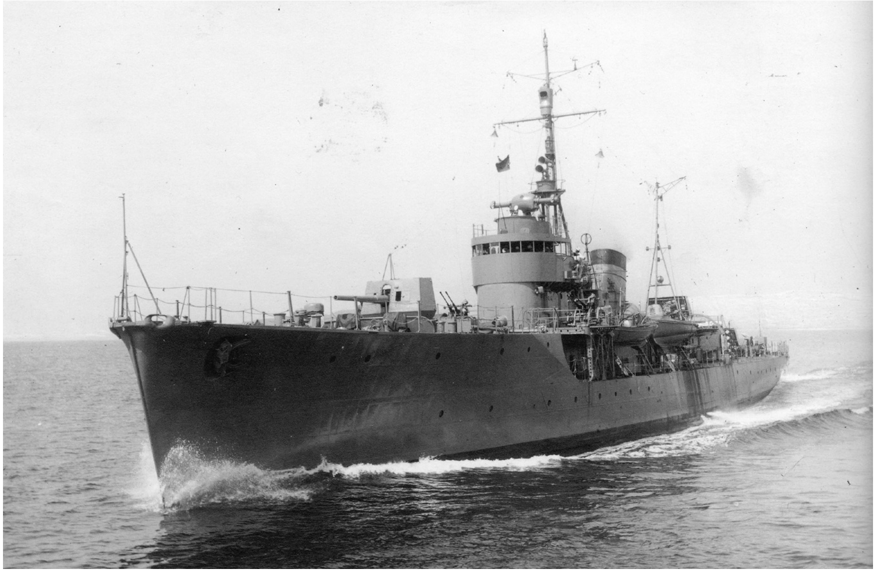
Shimushu Class Specifications	
Displacement	860 tons standard displacement; 1,020 tons trial displacement
Dimensions	Length 255ft 11in overall; Beam 29ft 10in; Draft 10ft
Speed	19.7kts
Range	8,000nm at 16kts
Crew	147

Etorofu Class

Design and Construction

As part of the naval build-up in the immediate prelude to war in 1941, the IJN decided to give more attention to convoy escorts. This included plans for 14 Modified Type A (Etorofu class) and 16 Type B (Mikura class) units. The fact that the Japanese thought that the provision of another 30 escorts to join the scant four escorts already in service would be sufficient to provide protection to their seaborne trade is beyond belief, especially in light of the fight then ongoing in the Atlantic between German submarines and the Royal Navy. Equally mystifying are the characteristics of the Modified Type A escorts. Supposedly dedicated primarily to convoy escort, they carried only one depth charge projector and retained the relatively low speed of the Shimushu class.

Production began between February 1942 and August 1943. To begin construction so quickly, the Shimushu class was used as the design basis with only slight modifications. Despite simplification of the bow, stern, and superstructure, the design was still too complex for mass production. One of the ships was not completed until early 1944.



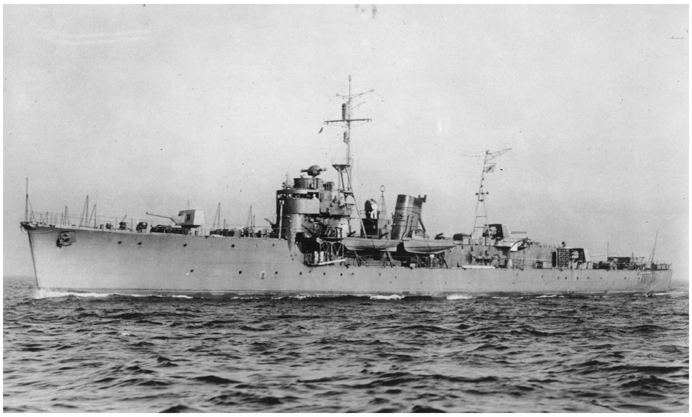
Etorofu-class escort *Fukue* pictured bow-on on June 25, 1943. The Etorofu class was virtually a repeat of the Shimushu class with some simplifications to facilitate production. This view shows the simplified bow and front edge of the bridge structure. Also note the newly fitted Type 22 radar on the foremast and the two original twin 25mm mounts abreast the bridge. *Fukue* was damaged on July 15, 1945 by USN carrier aircraft, but survived the war. (Yamato Museum)

Etorofu Class Construction

Ship	Builder	Laid down	Launched	Commissioned	Fate
Etorofu	Hitachi, Sakurajima	February 23, 1942	January 29, 1943	May 15, 1943	To US 1946; scrapped 1947
Matsuwa	Mitsui, Tamano	April 20, 1942	November 13, 1942	March 23, 1943	Sunk by USN submarine *Harder* August 22, 1944
Sado	Tsurumi	February 21, 1942	November 28, 1942	March 27, 1943	Sunk by USN submarine *Haddo* August 22, 1944
Oki	Uraga Dock	February 27, 1942	October 20, 1942	March 28, 1943	To China August 1947; captured by Communists in 1949 and served until 1982
Mutsure	Hitachi, Sakurajima	July 25, 1942	April 10, 1943	July 31, 1943	Sunk by USN submarine *Snapper* September 2, 1943
Iki	Mitsui, Tamano	May 2, 1942	February 5, 1943	May 31, 1943	Sunk by USN submarine *Raton* May 24, 1944
Tsushima	Tsurumi	June 20, 1942	March 20, 1943	July 28, 1943	To China July 1947 and served until 1963
Wakamiya	Mitsui, Tamano	July 16, 1942	April 19, 1943	August 10, 1943	Sunk by USN submarine *Gudgeon* November 23, 1943
Hirado	Hitachi, Sakurajima	November 2, 1942	June 30, 1943	September 28, 1943	Sunk by USN submarine *Growler* September 12, 1944
Fukue	Uraga Dock	October 30, 1942	April 2, 1943	June 28, 1943	To UK July 1947 and scrapped
Amakusa	Hitachi, Sakurajima	April 5, 1943	September 30, 1943	November 20, 1943	Sunk by RN aircraft August 9, 1945
Monju	Mitsui, Tamano	February 15, 1943	July 31, 1943	November 30, 1943	Scrapped 1946
Kanju	Uraga Dock	April 8, 1943	August 7, 1943	October 30, 1943	Scuttled after mine damage August 15, 1945
Kasado	Uraga Dock	August 10, 1943	December 9, 1943	February 27, 1944	Scrapped 1948

Armament and Modifications

The armament of the Etorofu class was identical to that of the Shimushu class, with the exception of some augmentation of the ASW weaponry. Only one Model 94 depth charge launcher was fitted on the quarterdeck along with a Model 3 loading frame, but the depth charge load was increased



Etorofu-class escort *Amakusa* in a port beam view from November 1943. The similarity to the preceding Shimushu class is evident, with the only discernable difference being the straight bow and lack of a curve in the leading edge of the bridge structure. *Amakusa* has not undergone any wartime modernization since no radar or additional antiaircraft guns are present. She was sunk only days before the end of the war in Onagawa Bay by a Royal Navy F-4U Corsair which hit the ship with a 500-pound bomb. The explosion detonated the aft magazine and the ship capsized with the loss of 71 men. (Yamato Museum)

from 18 to 36. During construction, the depth charge load was further increased to 60, which required the deletion of two paravanes for minesweeping. The ships were provided with a Model 93 sonar and a Type 93 hydrophone when completed.

Wartime modifications were similar to those given to Shimushu-class ships. A Type 22 radar was fitted on a platform on the foremast and a Type 13 radar fitted on the main mast. An 80mm mortar was also fitted forward of the bridge. By 1944 antiaircraft protection was enhanced to five triple mounts and a variable number of single 25mm mounts. There was no standard 25mm fit.

War Service

This class epitomizes the futility of the IJN's ASW efforts. All 14 ships were in service by early 1944 so faced the increasingly effective USN submarine offensive from late 1943 until the end of the war. The class was predominantly employed in the South and East China Seas on convoy escort duty. What is striking about the war records of these escorts is that few ships actually recorded an attack against an American submarine, much less a successful attack. Of the 14 ships, eight were sunk, six by USN submarines. Three of the six ships that survived the war were used for repatriation duties until being handed over to the victorious Allied navies.

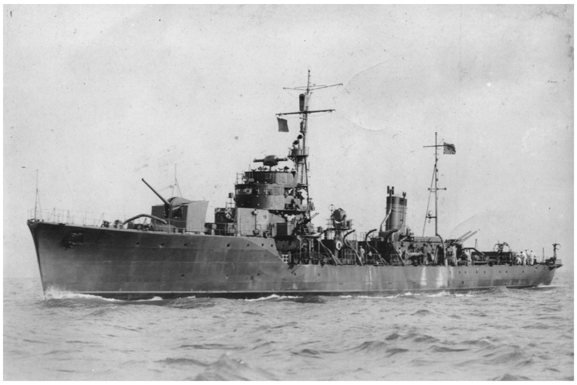
Etorofu Class Specifications	
Displacement	870 tons standard displacement
Dimensions	Length 255ft 11in overall; Beam 29ft 10in; Draft 10ft
Speed	19.7kts
Range	8,000nm at 16kts
Crew	147

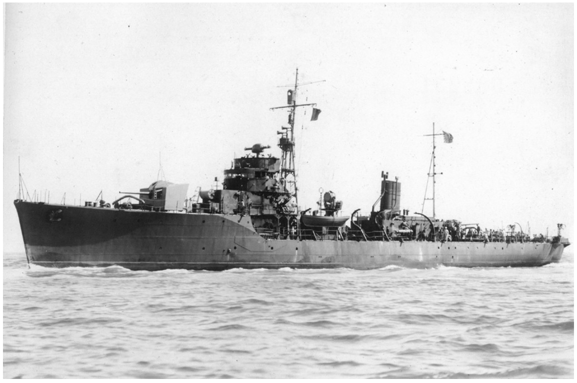
Mikura Class

Design and Construction

The Mikura class was the first IJN ship maximized for ASW. Despite the fact it was based on the previous two classes of escorts, it was in some respects a whole new design. The original intent was to design a completely new hull, but to save time a simplified Etorofu hull was adopted. The emphasis was placed on ASW, and accordingly, the ships' ASW armament was augmented to bring it in line with the ships' primary mission.

Production began in late 1942 alongside the later ships of the Etorofu class. The design was simplified from earlier escort classes, particularly in the design of the hull, the shape of the bridge superstructure and the aft deck house, and in its internal arrangements. In all, building time was reduced 20 percent, but was still considered to be too long. The new class retained two diesels for power, and the greater displacement meant a slightly reduced maximum speed. The fuel supply was reduced by 80 tons, which dropped the range to 5,000nm.





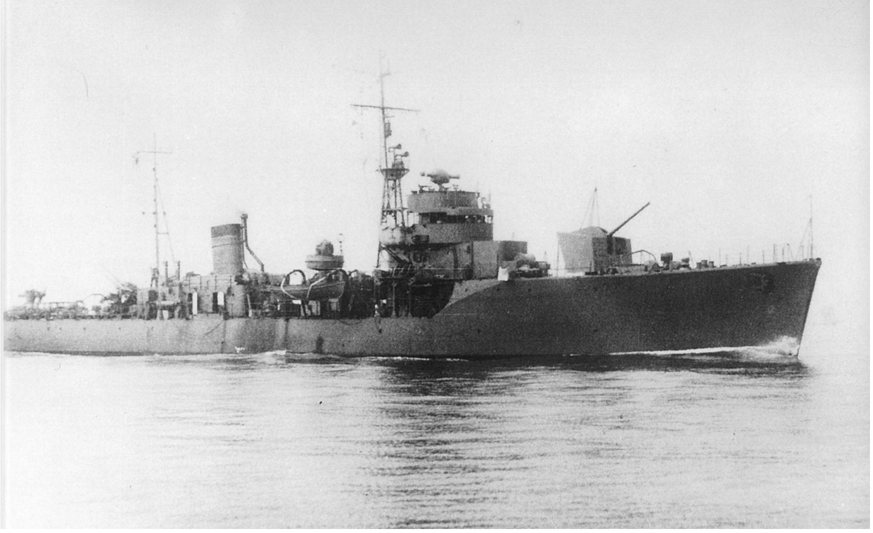
Primary recognition for the class was the new dual-purpose 4.7-inch guns, the stepped bridge, and the smaller stack, which was moved aft to reflect the changed location of the engine rooms.

Mikura Class Construction

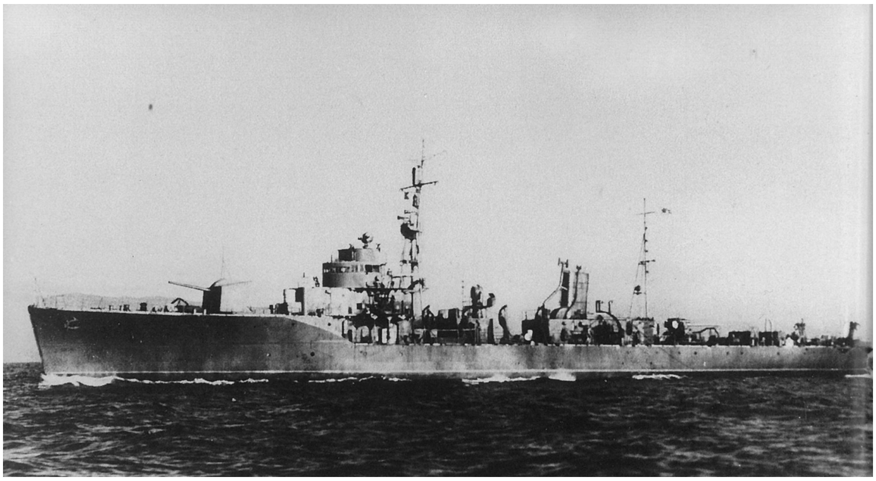
Ship	Builder	Laid down	Launched	Commissioned	Fate
Mikura	Tsurumi	October 1, 1942	July 16, 1943	October 31, 1943	Sunk by USN submarine *Threadfin* March 28, 1945
Miyake	Tsurumi	February 22, 1943	August 30, 1943	November 30, 1943	Scrapped 1948
Awaji	Hitachi, Sakurajima	June 1, 1943	October 30, 1943	January 25, 1944	Sunk by USN submarine *Picuda* June 2, 1944
Nomi	Hitachi, Sakurajima	August 10, 1943	December 3, 1943	February 28, 1944	Sunk by USN submarine *Tirante* April 14, 1945
Kurahashi	Tsurumi	June 1, 1943	October 15, 1943	February 19, 1944	To UK 1947, scrapped 1948
Yashiro	Hitachi, Sakurajima	November 18, 1943	February 16, 1944	May 10, 1944	To China 1947; scrapped 1963
Chiburi	Tsurumi	July 20, 1943	November 30, 1943	April 3, 1944	Sunk by USN carrier aircraft January 12, 1945
Kusagaki	Tsurumi	September 7, 1943	January 22, 1944	May 31, 1944	Sunk by USN submarine *Guitarro* August 7, 1944

ABOVE LEFT
Mikura-class escort *Nomi* seen in May 1944 shortly after her completion. The Mikura class presents a much different appearance than the previous classes. Principal differences include the stepped bridge, movement of the single stack further aft, and the different type and placement of the main battery. *Nomi* has been completed with a Type 22 radar on the foremast, but no additional antiaircraft guns other than the standard twin 25mm mounts abreast the bridge. *Nomi* was sunk by USN submarine *Tirante* off Japan on April 14, 1945. (Yamato Museum)

ABOVE RIGHT
This is Mikura-class escort *Yashiro* in May 1944 on trials just before commissioning. The ship has been fitted with a single 4.7-inch dual-purpose mount forward and a twin mount aft. *Yashiro* survived the war, and was handed over to the Nationalist Chinese government in 1947 and remained in service until 1956. (Yamato Museum)



Mikura-class *kaibokan Chiburi* in early 1944 as she was completed with a Type 22 radar on the foremast and 25mm antiaircraft guns abreast the bridge. The ship was among the several *kaibokan* sunk on January 12, 1945 in the South China Sea at the hands of USN carrier aircraft. (*Ships of the World* Magazine)



Mikura-class escort *Awaji* pictured in January 1944 in her original configuration, with a Type 22 radar fitted on the foremast and 25mm antiaircraft mounts abreast the bridge. The ship was sunk on June 2, 1944 by USN submarine *Picuda* in the Bashi Strait. (*Ships of the World* Magazine)

Armament and Modifications

The gun armament of the Mikura class's main battery was changed to the 4.7-inch/45 Year 10 model. A single shielded mount was fitted forward, and a twin unshielded mount aft. These were capable of engaging both surface and air targets. The original antiaircraft fit remained at two twin 25mm mounts. The ASW weapons were significantly increased – 120 Type 95 depth charges were carried to be deployed by two Model 94 depth charge launchers. The ships were provided with a Model 93 sonar and a Type 93 hydrophone when completed. In early 1944, the class was upgraded with the Model 3 Type 2 sonar; *Chiburi* was the first IJN ship fitted with this sensor. Later in the war, a third Type 94 depth charge launcher was added on the stern and the paravanes on the quarterdeck were removed.

By the time the ships were commissioned, it was obvious that their antiaircraft fit was too weak. Accordingly, the ships were provided with

D

TYPE B ESCORTS

1: This depicts *Mikura*, a Type B escort in her original 1943 configuration. The Type B was a further simplified version of the Etorofu class particularly regards to the hull, bridge superstructure, and the aft deck house. Even these simplifications were insufficient and the next class would be further refined. Primary recognition features for the Mikura class were the new dual-purpose 4.7-inch guns, the stepped bridge, and the smaller stack which was moved aft to reflect the changed location of the engine rooms. The 4.7-inch battery included a single shielded gun forward and an unshielded twin mount aft. Early ships possessed only two twin 25mm mounts abreast the bridge, but later in the war three triple mounts were placed on the aft deckhouse. Note the two depth charge launchers aft and the retention of minesweeping gear. The ship has been completed with a Type 22 radar on the foremast. *Mikura* served until March 1945 when she was probably sunk by a USN submarine southwest of the Japanese home island of Shikoku. All 216 crewmen aboard were lost.

2 & 3: These depict *Okinawa* in her late-war configuration. The ship was an Ukuru-class Type B Modified escort and shows the final configuration of this class. Note the heavy ASW armament of these ships, with eight depth charge launchers per side on the quarterdeck. An 80mm mortar is fitted forward of the bridge. The ship carried the maximum antiaircraft suite for this class, with five triple and five single 25mm mounts. A Type 22 radar is on the foremast and a Type 13 on the mainmast. *Okinawa* entered service in August 1944 and survived two air attacks in November in the Philippines area, the latter during which she was damaged. In June 1945, she assisted in the sinking of USN submarine *Bonefish*. Her short career came to an end on July 30 when the ship was caught undergoing repairs alongside a pier at Maizuru Naval Station and attacked by USN carrier aircraft. A near miss caused flooding in the engine room and the ship capsized.

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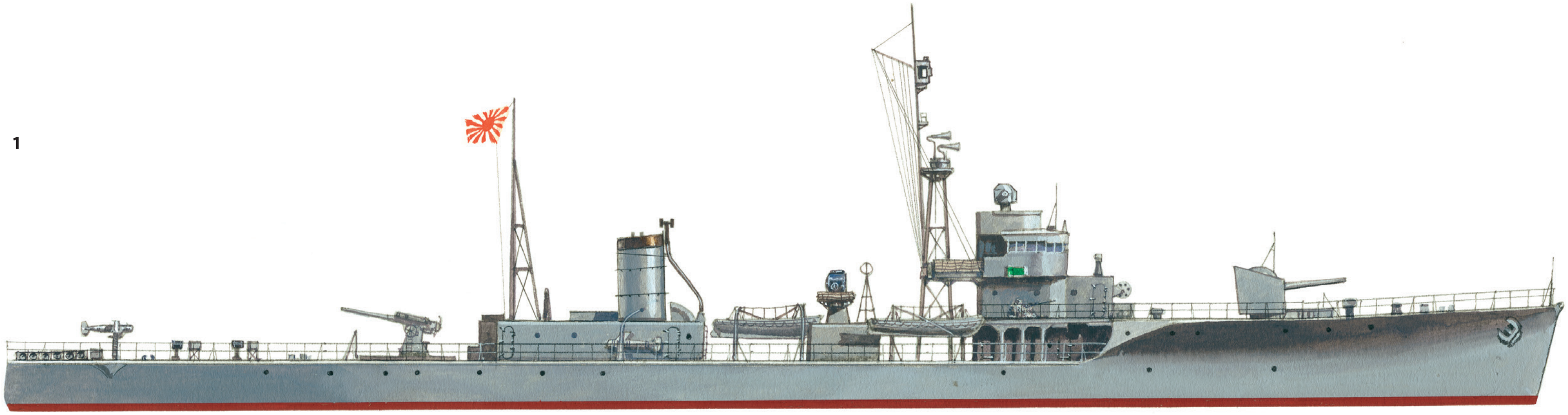

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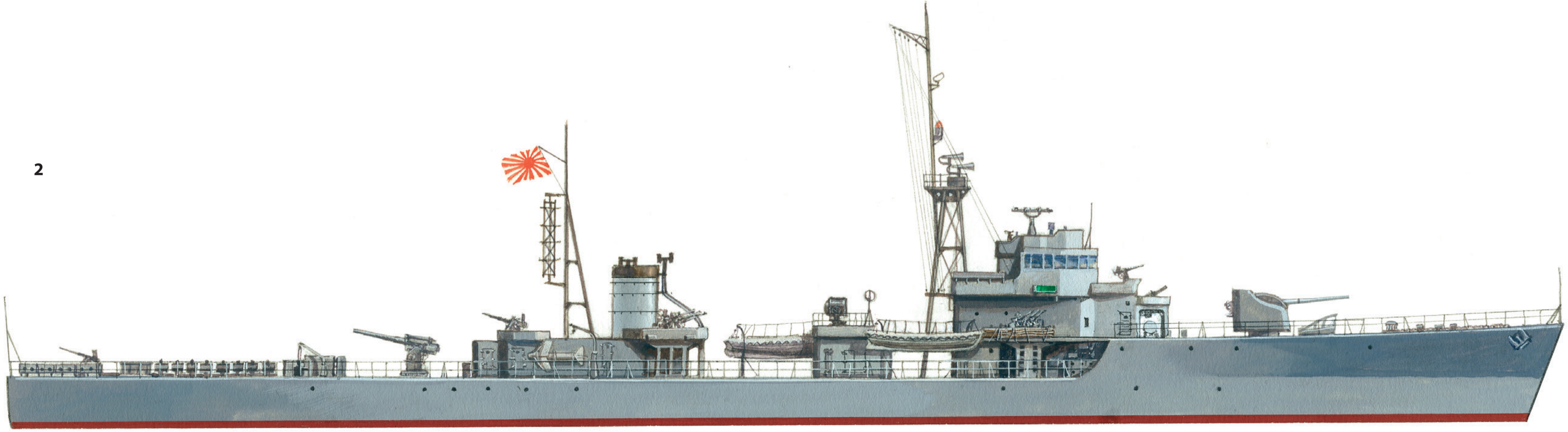

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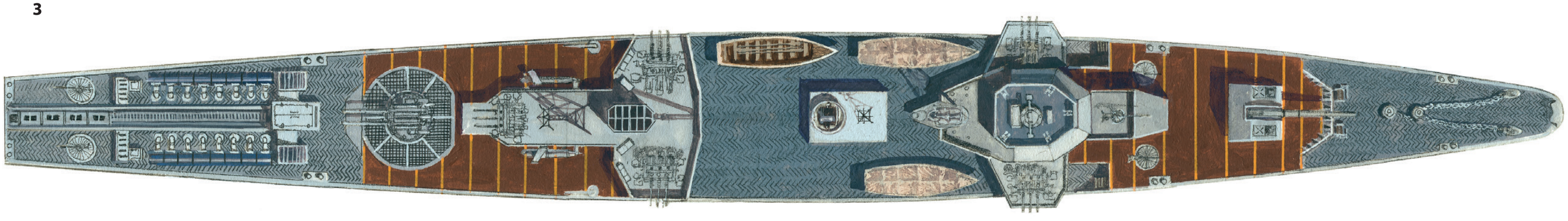
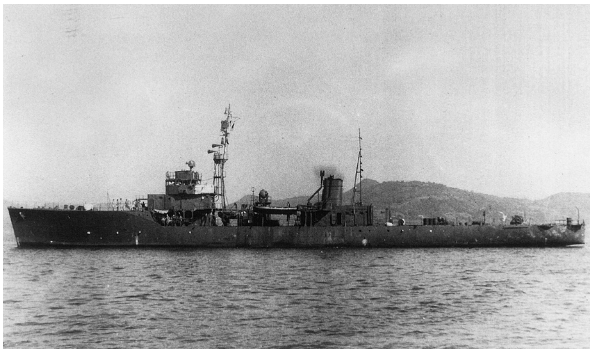


another three triple mounts and one single 25mm mount for a new total of 14 25mm guns. The 25mm fit was further modified late in the war on some ships, with the addition of another triple 25mm mount in front of the bridge and up to four single mounts. A Type 22 radar was fitted on a platform on the foremast and a Type 13 radar fitted on the main mast. An 80mm mortar was also fitted forward of the bridge.



Mikura-class escort *Yashiro* in August 1947 when she was handed over to the Nationalist Chinese Navy. The ship was demilitarized to conduct repatriation duties. (*Ships of the World* Magazine)

War Service

All eight ships saw extensive service from early 1944 until the end of the war almost exclusively in the South and East China Seas on convoy escort duty. Two USN submarines may have been destroyed by ships in this class, with *Chiburi* generally given credit for the sinking of *Growler* on November 8, 1944 and *Mikura* given credit for assisting in the destruction of *Trigger* on March 28, 1945. Of the eight, five were sunk (four by USN submarines). One ship survived the war to be used for repatriation duties and one was handed over to the Nationalist Chinese Navy and served long after the war.

Mikura Class Specifications	
Displacement	1,020 tons standard displacement
Dimensions	Length 258ft 6in overall; Beam 29ft 10in; Draft 10ft
Speed	19.5kts
Range	5,000nm at 16kts
Crew	150

Ukuru Class

Design and Construction

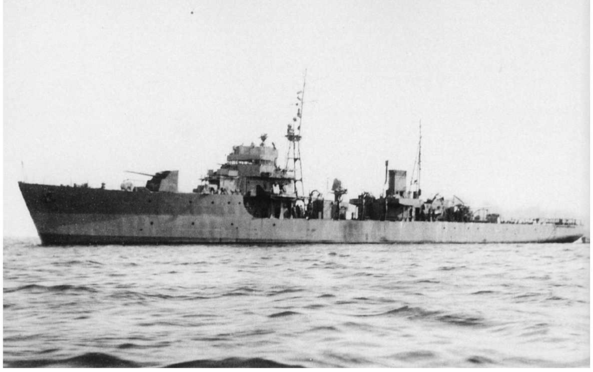
Even though building time was reduced for the Mikura class, it was still too long in light of the pressing need for ASW escorts. The Mikura design was still too complex, and showed a weakness in antiaircraft capability. The Ukuru class was the IJN's attempt to address these issues.

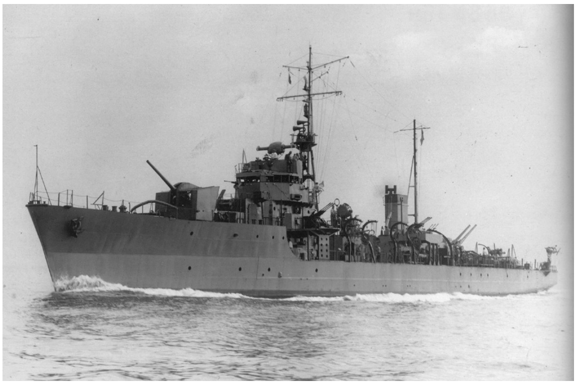
Using the Mikura class as a basis, the new class was further simplified to allow for mass production. The hull form was altered by reducing the use of shaped steel and curved plate. This greatly saved construction time, and though the new hull increased drag, there was no loss of speed. The curved plates on the bridge structure were also removed, and a hexagonal stack was provided in place of the previous round or oval stacks.

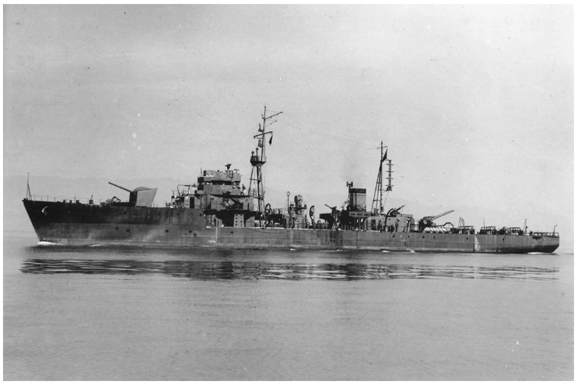
Internal arrangements were also simplified, which meant that habitability for the crew was compromised. The crew's quarters were now communal areas, and the reduction of fittings to reduce fire hazards meant that accommodation became spartan. This affected the ships' endurance and ultimately its effectiveness.

Twenty-nine ships were completed; four more lay uncompleted by war's end and 30 more were canceled. Building time was reduced

This photograph is of Ukuru-class escort *Uku* on December 30, 1944, the day she was commissioned. The ship was completed with a full suite of five 25mm triple mounts and a Type 22 radar on her foremast. After an uneventful career, *Uku* was used for repatriation duties before being handed over to the United States in 1947. (*Ships of the World* Magazine)







to as little as four months through the simplification of the hull form and the use of modular construction. Construction was hindered by the lack of diesel engines and the switch to the even simpler Type C and D designs later in the war.

Nine units and two additional unfinished ships belong to a sub-class named after the leading ship in the group, *Hiburi*. The others included *Daito*, *Shonan*, *Kume*, *Ikuna*, *Shisaka*, *Sakito*, *Mokuto*, and *Habuto*. These were a hybrid design using the armament and hull features of the Mikura class but the Ukuru-class design for all other features.

Ukuru Class Construction

Ship	Builder	Laid down	Launched	Commissioned	Fate
Hiburi	Hitachi, Sakurajima	January 3, 1944	April 10, 1944	June 27, 1944	Sunk by USN submarine *Haddo* August 22, 1944
Ukuru	Tsurumi	October 9, 1943	May 15, 1944	July 31, 1944	Weather survey ship 1947; assigned to Japanese Maritime Safety Agency as patrol ship *Satsuma*; scrapped 1965
Daito	Hitachi, Sakurajima	April 17, 1944	June 24, 1944	August 7, 1944	Sunk by mine December 16, 1945 while conducting postwar minesweeping operations
Okinawa	Tsurumi	December 10, 1943	June 19, 1944	August 16, 1944	Sunk by USN carrier aircraft July 30, 1945
Amami	Tsurumi	February 14, 1944	November 13, 1944	April 8, 1945	To UK 1947 and scrapped
Aguni	Tsurumi	February 5, 1944	September 21, 1944	December 2, 1944	Scrapped 1948
Shinnan	Uraga Dock	May 24, 1944	September 5, 1944	October 21, 1944	Weather survey ship 1947; assigned to Japanese Maritime Safety Agency as patrol ship *Tsugaru*; scrapped 1975
Shonan	Hitachi, Sakurajima	February 23, 1944	May 19, 1944	July 13, 1944	Sunk by USN submarine *Hoe* February 25, 1945
Yaku	Uraga Dock	May 24, 1944	September 5, 1944	October 23, 1944	Sunk by USN submarine *Hammerhead* February 23, 1945
Kume	Hitachi, Sakurajima	May 26, 1944	August 15, 1944	September 25, 1944	Sunk by USN submarine *Spadefish* January 28, 1945
Chikubu	Uraga Dock	September 8, 1944	November 24, 1944	December 31, 1944	Weather survey ship 1947; assigned to Japanese Maritime Safety Agency as patrol ship *Atsumi*; scrapped 1962
Ikuna	Hitachi, Sakurajima	June 30, 1944	September 4, 1944	October 15, 1944	Weather survey ship 1947; assigned to Japanese Maritime Safety Agency as patrol ship; scrapped 1963

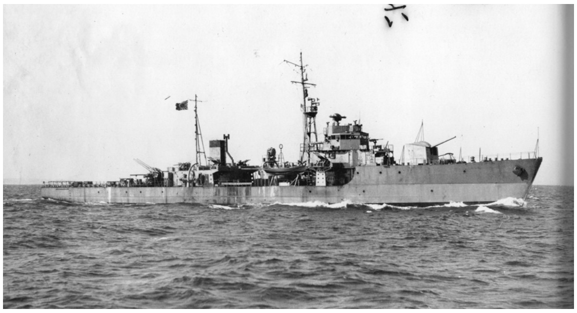
ABOVE LEFT
Ukuru-class escort *Shonan* in September 1944. The Ukuru class was similar to the Mikura class but with a simplified hull and a square stack to ease production. *Shonan* was completed with a Type 22 radar on the foremast, five triple 25mm mounts, and a single 25mm gun in front of the bridge. (Yamato Museum)

ABOVE RIGHT
Ukuru-class escort *Ikuna* pictured in October 1944. This fine beam view shows the final configuration for this class. A Type 22 has been fitted on the foremast and a Type 13 radar can be seen on the mainmast. The ship carries five triple 25mm mounts (two abreast the bridge and three around the stack), and a single 25mm gun in front of the bridge. Note the heavy ASW armament aft. *Ikuna* survived being torpedoed on April 10, 1945, when she took a single torpedo on her bow from USN submarine *Crevalle* in the Tsushima Strait, and was used in postwar minesweeping duties. In 1947, she was renamed *Ikuna Maru* and used as a weather ship to conduct typhoon patrols. In 1949, she was handed to the Maritime Safety Agency (forerunner of the Japan Coast Guard), reclassified as a patrol ship, and served in this capacity until 1963. (Yamato Museum)

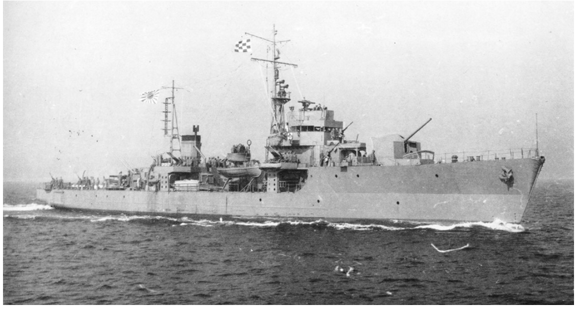
Kozu	Uraga Dock	October 20, 1944	December 31, 1944	February 7, 1945	To Russia 1947; scrapped 1969
Hotaka	Uraga Dock	November 27, 1944	January 28, 1945	March 30, 1945	To US 1947; scrapped 1948
Shisaka	Hitachi, Sakurajima	August 27, 1944	October 31, 1944	December 15, 1944	To China 1947; captured by Communists in 1949 and served until 1955
Ikara	Uraga Dock	December 26, 1944	February 22, 1945	April 30, 1945	Used as breakwater 1948, scrapped 1970
Sakito	Hitachi, Sakurajima	September 7, 1944	November 29, 1944	January 10, 1945	Scrapped 1947
Ikino	Uraga Dock	January 3, 1945	March 11, 1945	July 17, 1945	To Russia 1947
Mokuto	Hitachi, Sakurajima	November 5, 1944	January 7, 1945	February 19, 1945	Sunk by mine April 4, 1945
Habuto	Hitachi, Sakurajima	December 3, 1944	February 28, 1945	April 7, 1945	To UK 1947 and scrapped
Inagi	Mitsui, Tamano	May 15, 1944	September 25, 1944	December 16, 1944	Sunk by RN carrier aircraft August 9, 1945
Habushi	Mitsui, Tamano	August 20, 1944	November 20, 1944	January 10, 1945	To US 1947 and scrapped
Ojika	Mitsui, Tamano	September 7, 1944	December 30, 1944	February 21, 1945	Sunk by USN submarine *Springer* May 2, 1945
Kanawa	Mitsui, Tamano	November 15, 1944	January 20, 1945	March 15, 1945	To UK 1947 and scrapped
Uku	Sasebo Navy Yard	August 1, 1944	November 19, 1944	January, 25 1945	To US 1947 and scrapped
Takane	Mitsui, Tamano	December 15, 1944	February 13, 1945	April 26, 1945	Scrapped 1947
Kuga	Sasebo Navy Yard	August 1, 1944	November 19, 1944	January 25, 1945	Scrapped 1948
Shiga	Sasebo Navy Yard	November 25, 1944	February 9, 1945	March 20, 1945	Assigned to Japanese Maritime Safety Agency 1949; used as pavilion in maritime park in Chiba City until 1998
Iwo	Sasebo Navy Yard	November 25, 1944	February 12, 1945	March 24, 1945	Scrapped 1948

Armament and Modifications

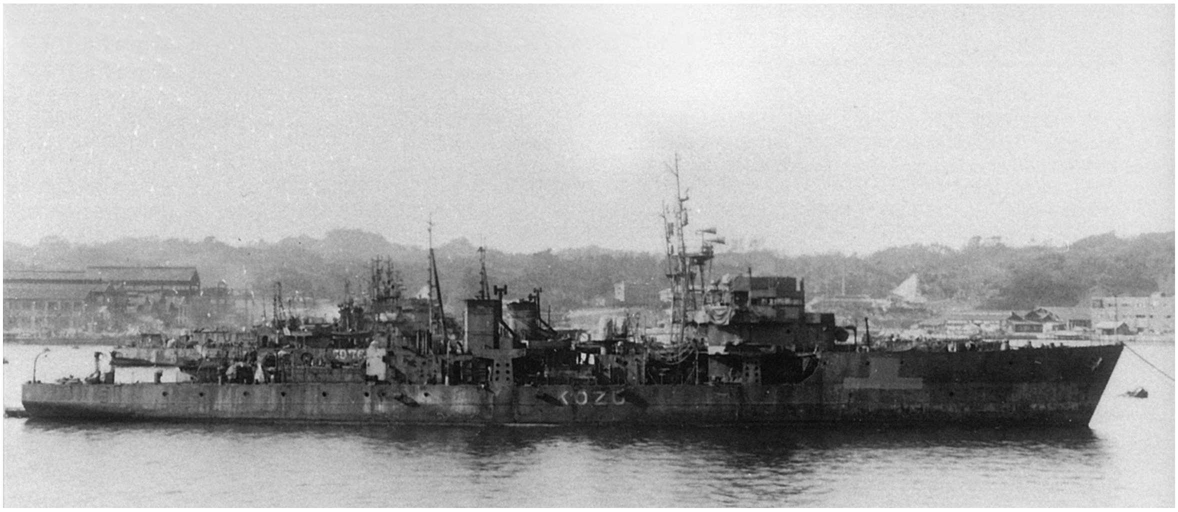
The dual-purpose 4.7-inch/45 Year 10 model was retained, but the later ships in the class were fitted with modified gun shields. The enhanced antiaircraft fit of earlier classes was incorporated into the Ukuru class before completion. This included five 25mm triple mounts – two abreast the bridge, two abreast the stack, and one aft on the deck house. A single 25mm mount was placed forward of the bridge, and some units received four additional single guns on the forecastle. A Type 22 radar was fitted on a platform on the foremast and a Type 13 radar fitted on the main mast.



BELOW LEFT
Ukuru-class escort *Amami* pictured in April 1945 after completion. Later in the month, she received a Type 13 radar on her mainmast. After a short and relatively uneventful wartime career, the ship was used in postwar repatriation duties before being scrapped in 1947. (Yamato Museum)



BELOW RIGHT
Ukuru-class escort *Yaku* was not completed until October 1944. This October 26 view shows the ship's final configuration. Note the radars on both masts. The ship carries the heaviest possible antiaircraft fit, with five triple and five single mounts. The single mounts are located three forward of the bridge and two on the stern. The 80mm mortar can also be seen forward of the bridge. *Yaku* was sunk by USN submarine *Hammerhead* on February 23, 1945 off the coast of French Indochina. (Yamato Museum)



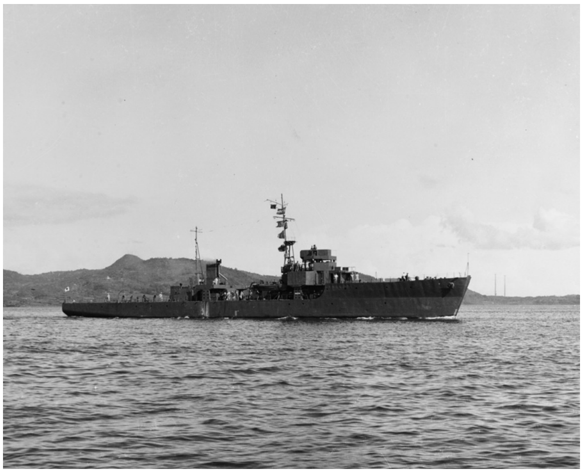
Ukuru-class escort *Kozu* in 1947 following completion of repatriation duties. The ship was given to the Soviet Union and served in various capacities in the Soviet Navy until 1969. (*Ships of the World* Magazine)

The ASW fit included 120 depth charges. The nine ships built at Sakurajima were fitted with three Model 94 depth charge launchers, three Model 3 loading frames, and two depth charge rails on the stern. The remainder of the ships were fitted with 16 Model 3 depth charge launchers arranged eight to a side on the ships' stern. The IJN still persisted in the notion that its escorts could double as minesweepers, and the Ukuru class was fitted with two paravanes and two large sweeping devices on the stern. This equipment was removed after completion. The ships were provided with a Model 93 sonar and a Type 93 hydrophone; later units received the Type 3 Model 2 sonar.

War Service

The Ukuru class was heavily engaged in the South and East China Seas on convoy escort duty. During these operations the ships were frequently exposed to American submarine and air attacks. Of the 29 ships which entered service, eight were sunk (five by submarines, two by mines, and one by mining). Several ships were damaged and survived, and the class exhibited a surprising ability to take damage. Eleven were mined during the war, but only three sank. As submarine hunters they were relatively ineffective; only *Okinawa* was credited with taking part in the destruction of a USN submarine (*Bonefish* on June 19, 1945 and the possible sinking of *Snook* on April 14, 1945). Surviving ships were assigned postwar minesweeping and repatriation duties. Five of the ships were returned to Japanese control as weather survey ships and later as patrol ships, and one served until 1966.

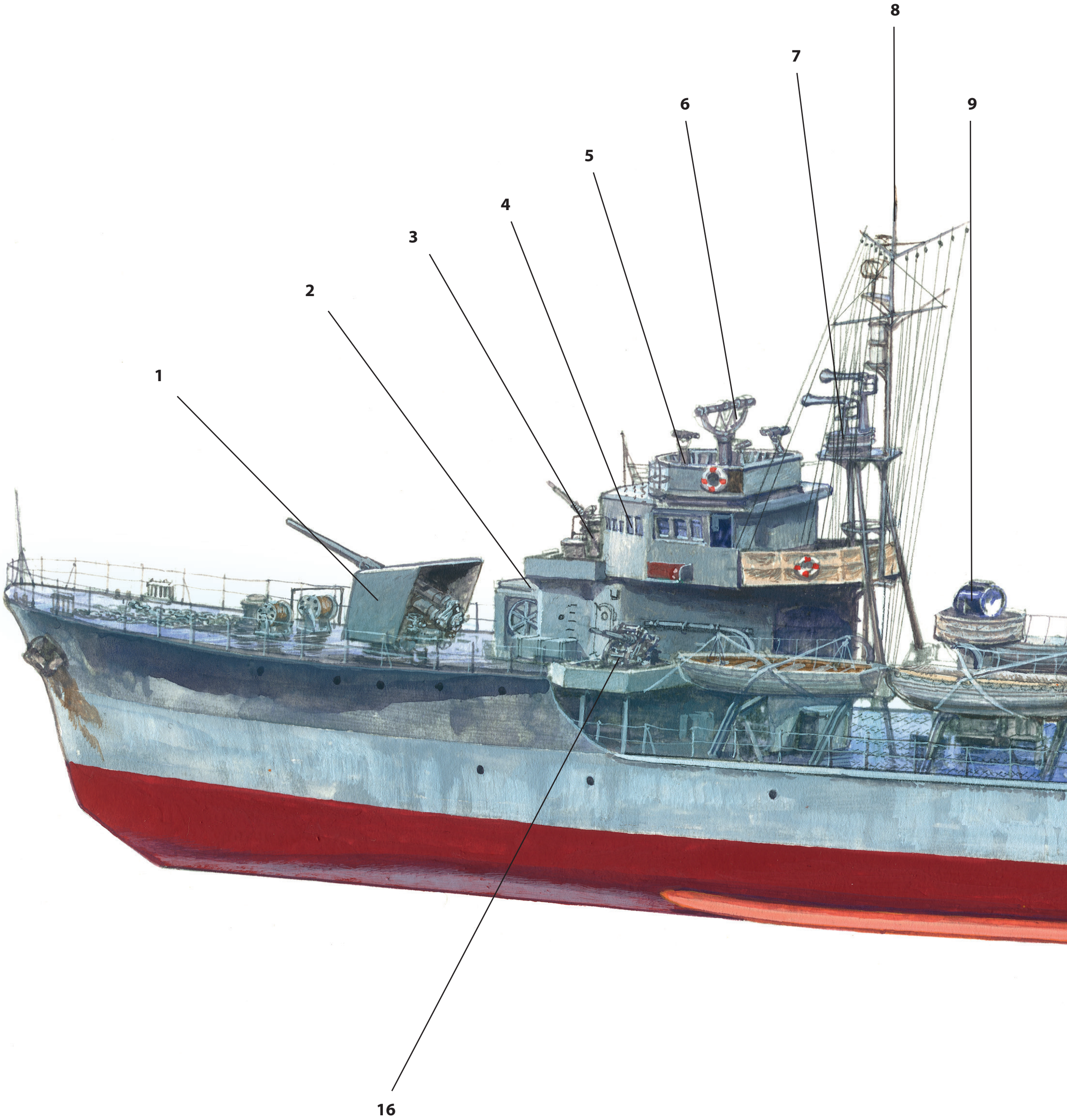
Ukuru Class Specifications	
Displacement	940 tons standard displacement
Dimensions	Length 258ft 5in overall; Beam 29ft 10in; Draft 10ft
Speed	19.5kts
Range	5,000nm at 16kts
Crew	150 (as designed), rising to 225



Ukuru-class escort ship *Kanawa* photographed in 1947 leaving Sasebo to be turned over to the Royal Navy following duties as a repatriation ship. The ship has been demilitarized with the removal of all weapons and radars. Below decks, accommodations for personnel were increased. After being handed over to the British, *Kanawa* was scrapped. (NHHC)

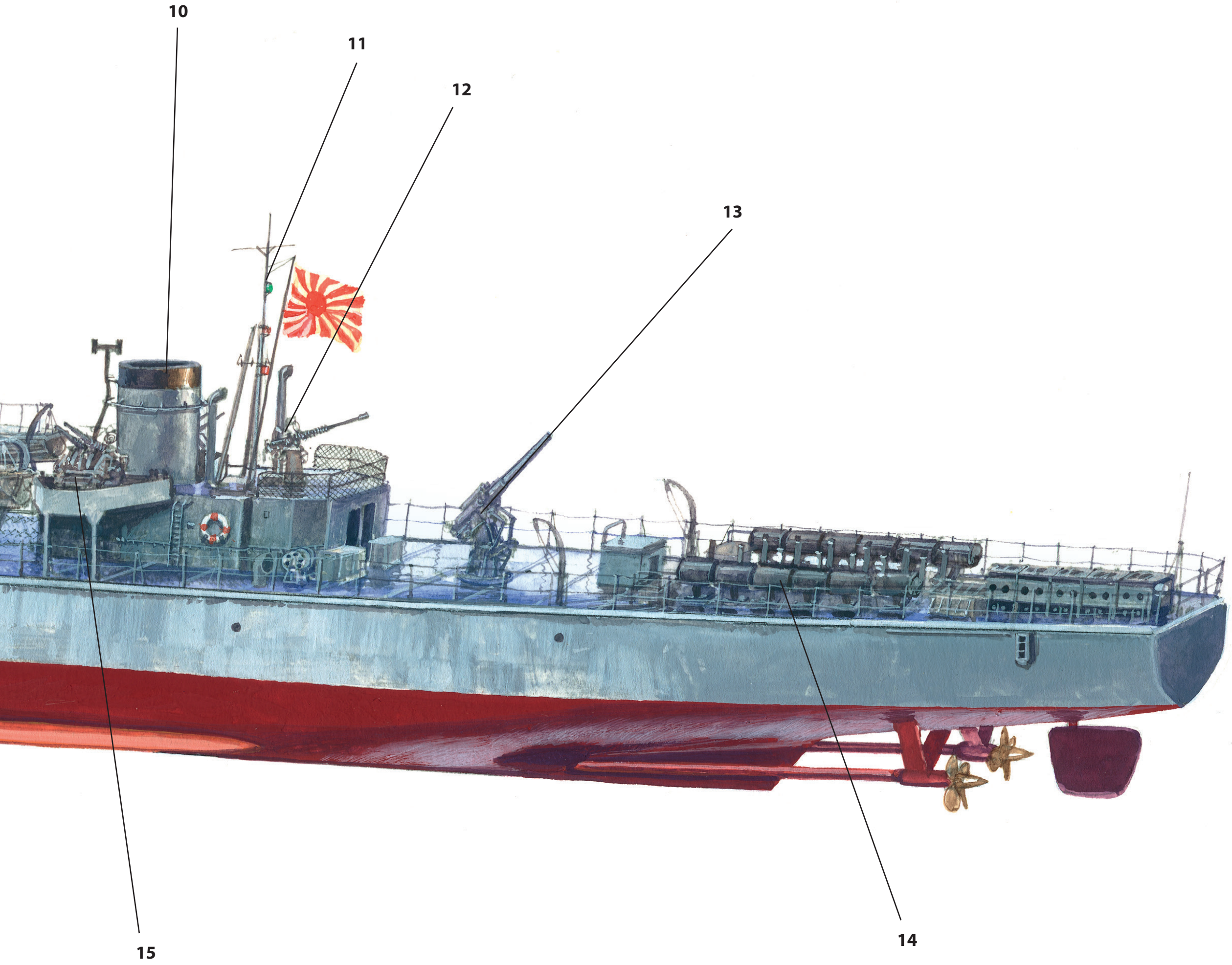
E NUMBER 1 CLASS (TYPE C)

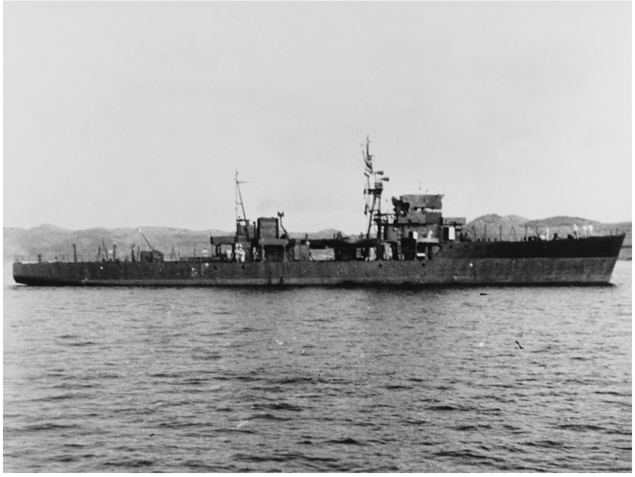
The Number 1 Class (Type C) was the IJN's first really serious attempt to design an ASW escort suitable for mass production. This plate depicts the intermediate configuration of a Type C unit in mid-1944. Eventually, 53 of these ships were completed, making it the second largest *kaibokan* class after the Number 2 Class (Type D).



KEY

1. 4.7-inch/45 Year 10 dual-purpose gun
2. 80mm ASW mortar
3. Type 96 25mm single mount
4. Navigation bridge
5. Air defense position with three binoculars
6. Rangefinder for main guns
7. Type 22 surface search radar
8. Foremast
9. Searchlight
10. Stack
11. Mainmast
12. Type 96 25mm single mount
13. 4.7-inch/45 Year 10 dual-purpose gun
14. Model 3 depth charge launchers
15. Type 96 triple 25mm mount
16. Type 96 twin 25mm mount





A demilitarized Type C *kaibokan* while assigned to postwar repatriation duties. The ship retains its Type 22 radar on the foremast for navigational safety. Though demilitarized, the ship is clearly identifiable as a Type C by its short hull and low stack aft. (NHHC)

Number 1 Escort Class (Type C)

Design and Construction

Despite the steps taken to simplify the Ukuru class for mass production, the Naval General Staff determined that an even more basic ASW escort design was needed which could be produced in still greater numbers. Another factor necessitating the design of a smaller escort was the congestion at larger shipyards, which were not able to keep up with the required pace of production. A smaller and simpler escort design could be constructed in small yards, some with no experience in building naval ships, by use of prefabrication methods.

The design pace was quick, as demanded by the worsening war situation. The requirement from the Naval General Staff was issued in March 1943, design work was completed in June, and the first ships were completed in February 1944. The ship was to be smaller than previous escort classes, but still had to be capable of operations on the open sea. The basis for the design was the Sokuten-class minelayer which displaced 750 tons. The hull shape was based on the Type 2E freighter which produced a suitable escort hull. The only major issue was that the ship was heavy by the bow, so extra ballast was added aft. To save time during construction, electric welding was used for the hull to join the prefabricated sections.

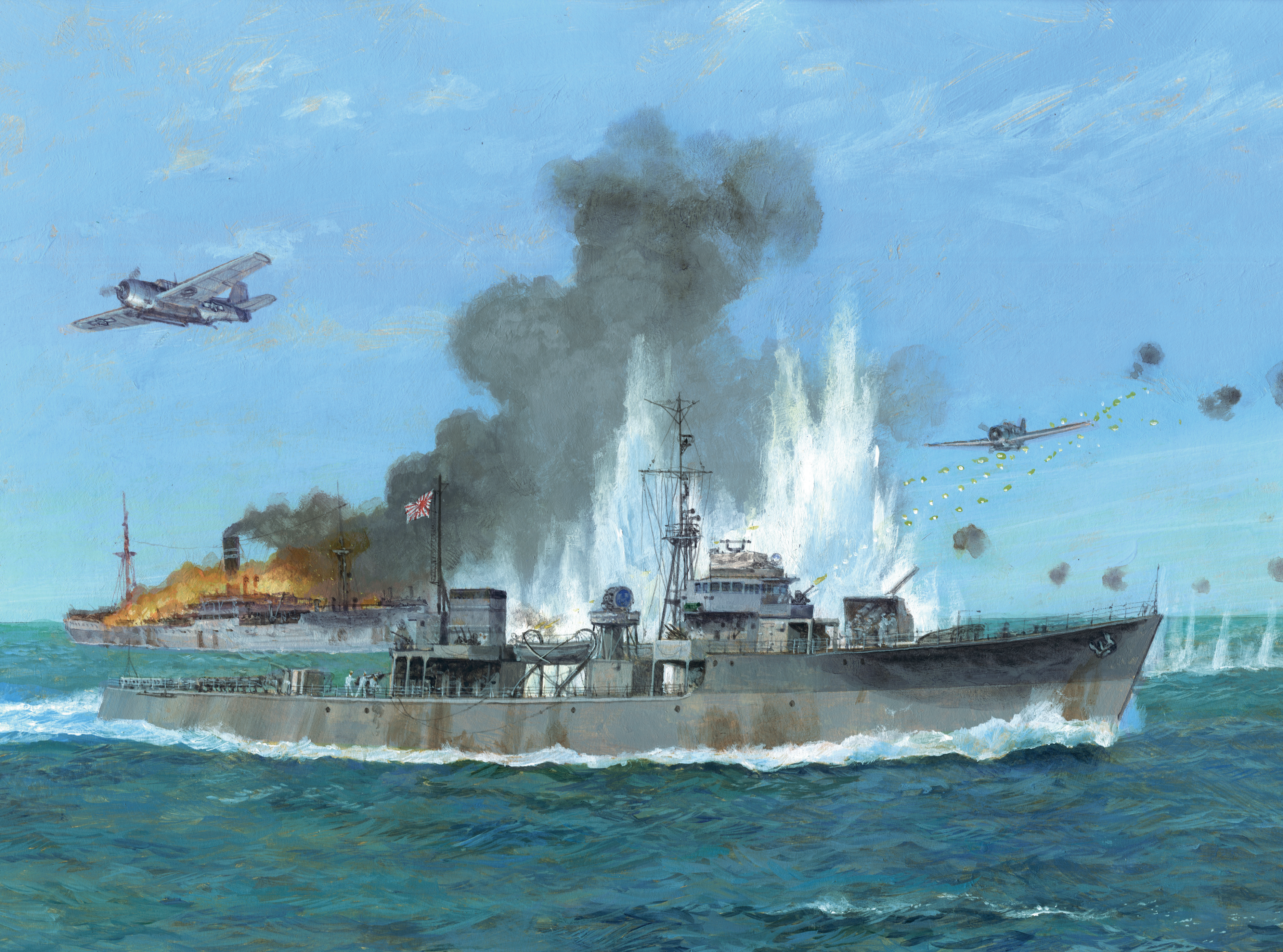
Another issue was the selection of a propulsion system. There was only a single diesel engine suitable for mass production. Even with an increase in propeller revolutions, the two diesels gave a maximum speed of only 16.5 knots – slower than any other escort class and some four knots slower than a surfaced USN fleet submarine. This class also suffered from excessive vibration and engine noise, which affected the performance of the sonars and hydrophones.

A total of 132 Type C units were planned but only 53 were finished by war's end. The ships were built in new yards which had never built any ship for the IJN before or ships as large as these escorts. The average building time was reduced to as little as three months.

F

KAIBOKAN VERSUS US AIRCRAFT

As the Japanese defensive perimeter shrank, the ASW escorts were exposed to an increasing scale of air attack. In January 1945, the carriers of the Third Fleet entered the South China Sea with the intent of ravaging the IJN's remaining combatants and shipping. The search for major combatants was unsuccessful, but on January 12 three convoys were located and brought under intensive air attack. One of these was Convoy SATA-05, with two tankers, two freighters, and a tank landing ship (LST) escorted by four escorts including *CD-35*, *CD-43*, a patrol boat, a minesweeper, and a submarine chaser. The convoy was attacked off Cape Paderan, French Indochina, by aircraft from Task Force 38. All of the merchant ships were sunk, except the LST, which was detached the night before due to heavy seas. *CD-35* was hit by three bombs and sunk, with the loss of 69 crewmen. *CD-43* was damaged, later beached, and then blown up by her crew. This scene depicts *CD-35* firing her 25mm guns at USN TBM Avenger aircraft. It shows a Type C escort in a late-war configuration with a total of 12 25mm guns. This insufficient armament and their slow speed made the *kaibokan* extremely vulnerable to air attack. On January 12 alone, a total of seven escort ships were sunk by carrier air attack.



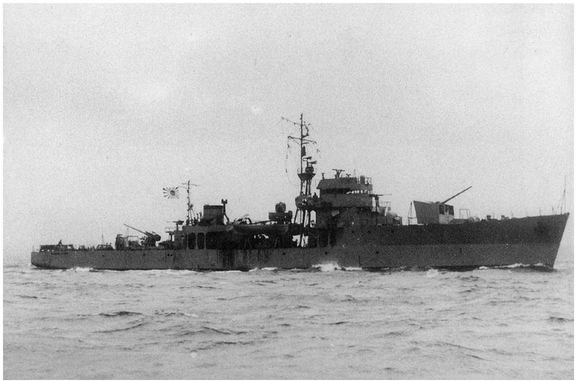
Number 1 Type C Class Construction

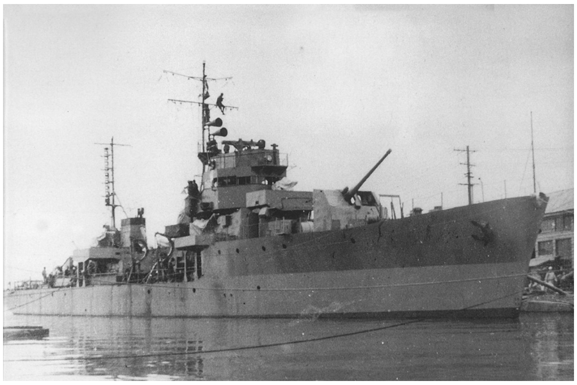
Ship	Builder	Laid down	Launched	Commissioned	Fate
CD-1	Mitsubishi, Kobe	September 15, 1943	December 29, 1943	February 19, 1944	Sunk by USAAF B-25s April 6, 1945
CD-3	Mitsubishi, Kobe	September 15, 1943	December 29, 1943	February 29, 1944	Sunk by USN carrier aircraft January 9, 1945
CD-5	Tsurumi	October 23, 1943	January 15, 1944	March 19, 1944	Sunk by USN carrier aircraft September 21, 1944
CD-7	Tsurumi	October 23, 1943	January 18, 1944	March 10, 1944	Sunk by USN submarine *Ray* November 14, 1944
CD-9	Mitsubishi, Kobe	October 15, 1943	January 15, 1944	March 10, 1944	Sunk by USN submarine *Gato* February 14, 1945
CD-11	Mitsubishi, Kobe	October 15, 1943	January 15, 1944	March 15, 1944	Sunk by USAAF B-25s November 10, 1944
CD-13	Tsurumi	November 18, 1943	February 9, 1944	April 3, 1944	Sunk by USN submarine *Torsk* August 14, 1945
CD-15	Tsurumi	November 18, 1943	February 21, 1944	April 8, 1944	Sunk by USN submarine *Raton* June 6, 1944
CD-17	Tsurumi	December 15, 1943	February 26, 1944	April 13, 1944	Sunk by USN carrier aircraft January 12, 1945
CD-19	Tsurumi	December 15, 1943	February 28, 1944	April 28, 1944	Sunk by USN carrier aircraft January 12, 1945
CD-21	Nihonkai Dock	December 1, 1943	March 31, 1944	July 18, 1944	Sunk by USN submarine *Seahorse* October 6, 1944
CD-23	Nihonkai Dock	February 10, 1944	May 20, 1944	September 15, 1944	Sunk by USN carrier aircraft January 12, 1945
CD-25	Tsurumi	February 1, 1944	May 14, 1944	July 2, 1944	Sunk by USN submarine *Springer* May 3, 1945
CD-27	Tsurumi	February 16, 1944	June 3, 1944	July 20, 1944	To UK 1947 and scrapped
CD-29	Tsurumi	March 2, 1944	June 26, 1944	August 8, 1944	Scrapped 1948
CD-31	Tsurumi	March 3, 1944	July 4, 1944	August 21, 1944	Sunk by USN submarine *Tirante* April 14, 1945
CD-33	Tsurumi	May 26, 1944	July 22, 1944	August 31, 1944	Sunk by USN carrier aircraft March 28, 1945
CD-35	Tsurumi	May 30, 1944	September 3, 1944	October 11, 1944	Sunk by USN carrier aircraft January 12, 1945
CD-37	Nihonkai Dock	April 5, 1944	August 5, 1944	November 3, 1944	To US 1947 and scrapped
CD-39	Tsurumi	June 10, 1944	August 13, 1944	September 27, 1944	Sunk by USAAF B-25s August 7, 1945
CD-41	Tsurumi	July 1, 1944	September 8, 1944	October 16, 1944	Sunk by USN submarine *Sea Owl* June 9, 1945
CD-43	Mitsubishi, Kobe	April 10, 1944	June 22, 1944	July 31, 1944	Sunk by USN carrier aircraft January 12, 1945
CD-45	Nihonkai Dock	May 25, 1944	October 5, 1944	December 23, 1944	Sunk by USN carrier aircraft July 28, 1945
CD-47	Tsurumi	July 15, 1944	September 29, 1944	November 2, 1944	Sunk by USN submarine *Torsk* August 14, 1945
CD-49	Tsurumi	July 31, 1944	October 15, 1944	November 16, 1944	To US 1947; scrapped 1948
CD-51	Mitsubishi, Kobe	May 1, 1944	August 20, 1944	September 21, 1944	Sunk by USN carrier aircraft January 12, 1945
CD-53	Tsurumi	August 15, 1944	October 29, 1944	November 28, 1944	Sunk by USN submarine *Bergall* February 7, 1945
CD-55	Tsurumi	August 20, 1944	November 4, 1944	December 20, 1944	To UK 1947 and scrapped
CD-57	Tsurumi	September 10, 1944	November 15, 1944	January 13, 1945	Scrapped 1948

CD-59	Tsurumi	September 25, 1944	November 22, 1944	February 2, 1945	Sunk by collision 1946; scrapped 1947
CD-61	Maizuru Navy Yard	April 1, 1944	July 25, 1944	September 15, 1944	Scrapped 1947
CD-63	Mitsubishi, Kobe	July 1, 1944	September 20, 1944	October 15, 1944	Scrapped 1948
CD-65	Nihonkai Dock	August 10, 1944	November 30, 1944	February 13, 1945	Sunk by USN carrier aircraft July 14, 1945
CD-67	Maizuru Dock Yard	June 15, 1944	September 15, 1944	November 12, 1944	To China 1947; stricken 1963
CD-69	Mitsubishi, Kobe	August 24, 1944	November 28, 1944	December 20, 1944	Sunk by USAAF B-24s March 16, 1945
CD-71	Tsurumi	October 5, 1944	December 3, 1944	March 12, 1945	To Russia 1947
CD-73	Tsurumi	October 8, 1944	December 10, 1944	April 5, 1945	Sunk by USN submarine *Sunfish* April 16, 1945
CD-75	Nihonkai Dock	October 18, 1944	February 20, 1945	April 21, 1945	Sunk by probable mine August 10, 1945
CD-77	Tsurumi	November 2, 1944	December 18, 1944	March 31, 1945	To Russia 1947
CD-79	Tsurumi	November 6, 1944	December 30, 1944	May 6, 1945	To Russia 1947
CD-81	Maizuru Navy Yard	August 7, 1944	October 15, 1944	December 15, 1944	To China 1947; captured by Communists 1949
CD-85	Tsurumi	November 20, 1944	January 27, 1945	May 31, 1945	To China 1947; captured by Communists 1949
CD-87	Tsurumi	November 27, 1944	February 15, 1945	May 20, 1945	To US 1947 and scrapped
CD-95	Tsurumi	November 27, 1944	April 14, 1945	July 4, 1945	Scrapped 1948
CD-97	Tsurumi	October 5, 1944	May 25, 1945	December 12, 1945	Completed postwar and used as repatriation ship; scrapped 1947
CD-205	Niigata	May 10, 1944	August 15, 1944	October 30, 1944	To China 1947; stricken 1960
CD-207	Naniwa, Osaka	May 17, 1944	August 24, 1944	October 15, 1944	To US 1947 and sunk as target
CD-213	Mitsubishi, Kobe	September 24, 1944	January 15, 1945	February 12, 1945	Sunk by mine postwar August 18, 1945
CD-215	Niigata	July 20, 1944	November 10, 1944	December 30, 1944	To China 1947
CD-217	Mitsubishi, Kobe	December 1, 1944	February 26, 1945	July 17, 1945	To UK 1947 and scrapped 1948
CD-219	Naniwa, Osaka	September 2, 1944	November 30, 1944	January 25, 1945	Sunk by USN submarine *Carp* July 13, 1945
CD-221	Niigata	September 11, 1944	December 26, 1944	April 2, 1945	To Russia 1947; stricken 1958
CD-225	Niigata	November 22, 1944	March 26, 1945	May 28, 1945	Scrapped 1948
CD-227	Naniwa, Osaka	December 5, 1944	February 10, 1945	June 15, 1945	To Russia 1947
Notes: Since these ships were not considered major warships by the IJN, they were given numbers instead of names. Type C ships were given odd numbers, and Type D even numbers. The CD stands for coastal defense (*kaibokan*).					

Armament and Modifications

The main battery was two single dual-purpose 4.7-inch/45 Year 10 models, one forward and one aft. Only the forward gun was given a shield, and later ships did not even have that. The original antiaircraft fit comprised two triple 25mm mounts, mounted abreast the single stack. After *CD-21*, the antiaircraft fit was increased, with the addition of two twin 25mm mounts





ABOVE LEFT
Type C *kaibokan CD-39* pictured in September 1944, the month she entered service. The ship was completed with a full antiaircraft suite of two triple, two twin, and two single 25mm mounts. The foremast has been fitted with a Type 22 radar. The ship was sunk on August 7, only days before the end of the war, by USAF B-25 medium bombers near Pusan, Korea. (*Ships of the World* Magazine)

ABOVE RIGHT
Type C escort *CD-225* is pictured on May 28, 1945, the day she entered service. She was one of the last *kaibokan* completed and entered service with radars on both masts and a full antiaircraft suite. The ship saw no action before the end of the war, then was used briefly for repatriation duties before being scrapped in 1948. (*Ships of the World* Magazine)

abreast the bridge and two single 25mm guns, one forward of the bridge and the other on the aft deckhouse. As with other escorts, the standard radar fit was Type 22 radar on a platform on the foremast and, after fall 1944, a Type 13 radar fitted on the mainmast.

The ASW fit included 120 depth charges. The ships were fitted with 12 Model 3 depth charge launchers arranged six to a side on the ships' stern. The ships received an 80mm mortar positioned in front of the bridge. The ships were provided with two Type 3 Model 2 sonars and a Type 93 hydrophone. No minesweeping gear was fitted upon completion.

War Service

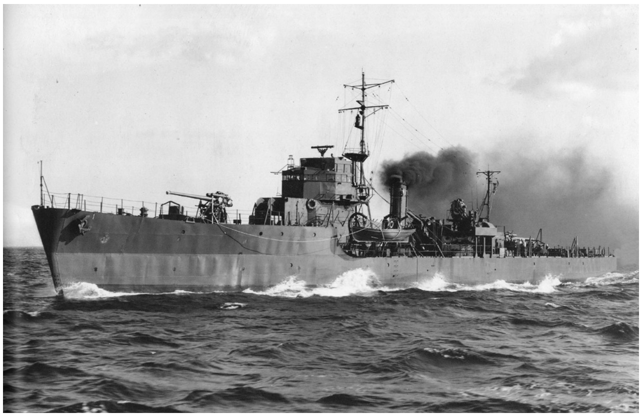
In their primary role as ASW hunters, the Type C units were relatively ineffective. The only recorded loss of a USN submarine by these ships was the destruction of *Bonefish*, to which *CD-63* and *CD-207* contributed. Type C units contributed to the loss of two other USN submarines. Most ships of this class never even recorded an attack on a USN submarine. Their slow speed and ineffective sonars and radars reduced them to rescue ships as USN submarines pummeled the convoys they were escorting.

Of the 53 ships in the class, 27 were sunk during the war, 25 survived, and one was completed after war's end. Of the 27 lost in combat, 14 were sunk by air attack. When exposed to air attacks, the weak antiaircraft capabilities of these ships were fully exposed. Twelve more were sunk by submarines, which gave a poor exchange ratio compared with the USN submarines sunk by these ships. *CD-13* had the dubious distinction of being the last IJN warship sunk in the war when she was torpedoed by a USN submarine on August 14, 1945.

Most of the surviving ships only avoided destruction because they were commissioned late in the war and had little time exposed to attack. Of the 25 surviving ships, three were assigned postwar minesweeping duties and 17 were assigned repatriation duties.

Number 1 Class (Type C) Specifications	
Displacement	745 tons standard displacement; 810 tons trial displacement
Dimensions	Length 221ft 6in overall; Beam 27ft 7 in; Draft 9ft 6in
Speed	16.5kts
Range	6,500nm at 14kts
Crew	125 (design); rising to 170

Number 2 Escort Class (Type D)



This photograph shows *CD-8* in February 1944; the ship is on builder's trials since no radar and not all armament has been fitted. Note the austere overall appearance of the ship, which was designed for mass production. *CD-8* survived the war to be scrapped in 1947. (Yamato Museum)

It immediately became apparent after construction of Type C units began that the supply of diesel engines was insufficient. With the requirement for large numbers of escorts still paramount, and no other diesel engine available, the only solution was to fall back on turbine engines. These were much less fuel efficient than diesels, and thus promised a shorter endurance.

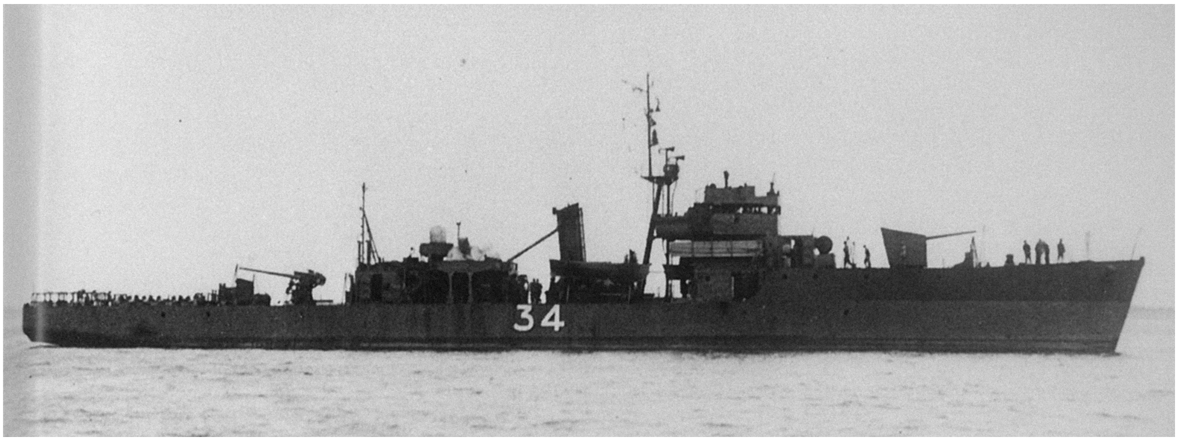
This change in propulsion required a rework of the Type C design, which was done in the short span of just over a month from June to July 1943. The main difference was that the size of the fuel tanks was increased on the Type D escorts, which resulted in a slightly longer hull and deeper draft. The extra fuel increased the trials' displacement by 90 tons.

The provision of more powerful turbines resulted in a knot increase in speed. The internal arrangements differed, which resulted in a different position of the stack. The stack was moved from the aft position to one amidships. The stack itself was higher and reverted back to an oval shape. Because the stack was moved to the center position, it displaced the searchlight, which was moved to the aft deck house.

Type D ships laid down after January 1945, and those still under construction at this time, were fitted with boilers that burned coal. Some ships which returned for repair were also converted to burn coal. This measure was forced by the severe oil shortage which restricted IJN operations late in the war.

A total of 143 Type D units were planned; of these 63 were finished by the war's end. Another five were completed after the war to conduct repatriation duties; three more were laid down and not completed. Thirty-one more were canceled. The ships were built in small and medium-sized yards, but in spite of the successful efforts to simplify the design to allow construction to be done in 70 days, the lack of materials late in the war meant that production goals were not attained and that average construction time was over three months.

This is Type D *kaibokan CD-34* in August 1944, when she was commissioned. The ship's number on her hull was painted out before entering active service. The ship was completed without any additional antiaircraft guns beyond the original two triple mounts abaft the small stack and has no Type 13 radar on the mainmast. *CD-34* survived the war and served in the Soviet Navy until 1960. (*Ships of the World* Magazine)



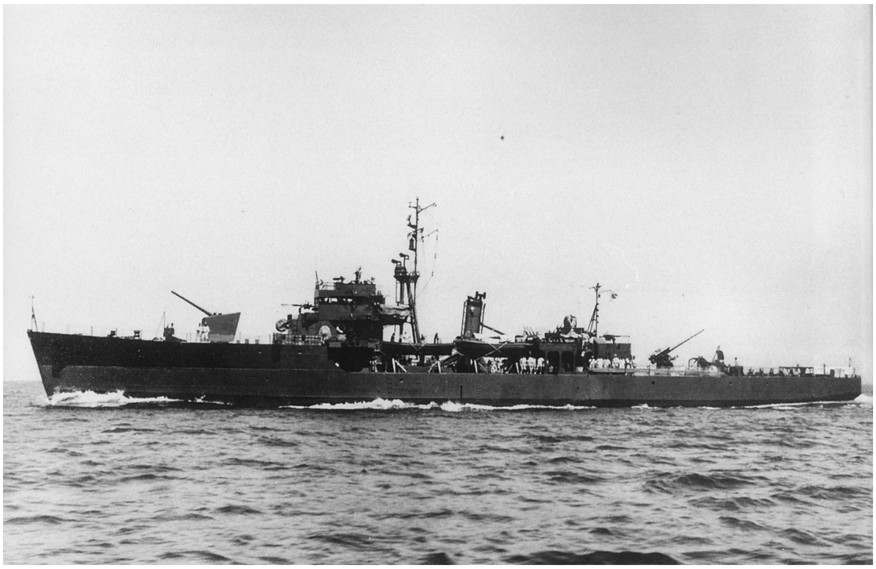
Number 2 Class (Type D) Construction

Ship	Builder	Laid down	Launched	Commissioned	Fate
CD-2	Yokosuka Navy Yard	October 5, 1943	December 30, 1943	February 28, 1944	Scrapped 1948
CD-4	Yokosuka Navy Yard	October 5, 1943	December 30, 1943	March 7, 1944	Sunk by RN carrier aircraft July 28, 1945
CD-6	Yokosuka Navy Yard	October 5, 1943	January 15, 1944	March 15, 1944	Sunk by USN submarine *Atule* August 13, 1945
CD-8	Mitsubishi, Nagasaki	October 20, 1943	January 11, 1944	February 29, 1944	To UK 1947 and scrapped
CD-10	Mitsubishi, Nagasaki	October 20, 1943	January 11, 1944	February 29, 1944	Sunk by USN submarine *Plaice* September 27, 1944
CD-12	Yokosuka Navy Yard	October 5, 1943	January 15, 1944	March 22, 1944	To US 1947 and scrapped
CD-14	Yokosuka Navy Yard	October 5, 1943	January 25, 1944	March 27, 1944	To China 1947; captured by Communists in 1949 and stricken 1982
CD-16	Yokosuka Navy Yard	October 5, 1943	January 25, 1944	March 31, 1944	To UK 1947 and scrapped
CD-18	Mitsubishi, Nagasaki	November 1, 1943	January 11, 1944	March 8, 1944	Sunk by USAAF B-25s March 29, 1945
CD-20	Mitsubishi, Nagasaki	November 1, 1943	January 11, 1944	March 11, 1944	Sunk by USAAF B-25s November 30, 1944
CD-22	Mitsubishi, Nagasaki	November 1, 1943	January 27, 1944	March 24, 1944	To US 1947 and scrapped
CD-24	Mitsubishi, Nagasaki	November 1, 1943	January 27, 1944	March 28, 1944	Sunk by USN submarine *Archerfish* June 28, 1944
CD-26	Mitsubishi, Nagasaki	February 1, 1944	April 11, 1944	May 31, 1944	To US 1947 and scrapped
CD-28	Mitsubishi, Nagasaki	February 1, 1944	April 11, 1944	May 31, 1944	Sunk by USN submarine *Blenny* December 14, 1944
CD-30	Mitsubishi, Nagasaki	February 15, 1944	May 10, 1944	June 26, 1944	Sunk by USN carrier aircraft July 28, 1945
CD-32	Mitsubishi, Nagasaki	February 15, 1944	May 10, 1944	June 30, 1944	To UK 1947; scrapped 1948
CD-34	Ishikawajima	March 25, 1944	July 6, 1944	August 25, 1944	To Russia 1947; stricken 1960
CD-36	Fujinagata	March 20, 1944	September 16, 1944	October 21, 1944	To US 1947; scrapped 1948
CD-38	Kawasaki, Kobe	April 2, 1944	June 15, 1944	August 10, 1944	Sunk by USN submarine *Hardhead* November 25, 1944
CD-40	Fujinagata	March 20, 1944	November 15, 1944	December 22, 1944	To China 1947; stricken 1963
CD-42	Mitsubishi, Nagasaki	April 15, 1944	July 7, 1944	August 25, 1944	Sunk by USN submarine *Puffer* January 10, 1945
CD-44	Mitsubishi, Nagasaki	April 15, 1944	July 7, 1944	August 31, 1944	To US 1947 and sunk as target
CD-46	Kawasaki, Kobe	May 1, 1944	June 30, 1944	August 29, 1944	Sunk by mine August 17, 1945
CD-48	Fujinagata	May 15, 1944	January 18, 1945	March 13, 1945	To Russia 1947
CD-50	Ishikawajima	July 8, 1944	September 9, 1944	October 13, 1944	Scrapped 1948
CD-52	Mitsubishi, Nagasaki	May 15, 1944	August 7, 1944	September 25, 1944	To Russia 1947; stricken 1958
CD-54	Mitsubishi, Nagasaki	May 15, 1944	August 7, 1944	September 30, 1944	Sunk by USN carrier aircraft December 15, 1944
CD-56	Kawasaki, Kobe	June 1, 1944	July 30, 1944	September 27, 1944	Sunk by USN submarine *Bowfin* February 16, 1945
CD-60	Kawasaki, Kobe	June 16, 1944	September 15, 1944	November 9, 1944	To UK 1947 and scrapped
CD-64	Mitsubishi, Nagasaki	July 8, 1944	September 5, 1944	October 15, 1944	Sunk by USN submarine *Pipefish* December 3, 1944
CD-66	Mitsubishi, Nagasaki	July 8, 1944	September 5, 1944	October 21, 1944	Sunk by USAAF B-25s March 13, 1945
CD-68	Kawasaki, Kobe	July 3, 1944	September 30, 1944	November 20, 1944	Sunk by USN carrier aircraft March 24, 1945
CD-72	Ishikawajima	August 18, 1944	October 23, 1944	November 25, 1944	Sunk by USN submarine *Haddo* July 1, 1945
CD-74	Mitsubishi, Nagasaki	August 1, 1944	November 2, 1944	December 10, 1944	Sunk by USN carrier aircraft July 14, 1945
CD-76	Mitsubishi, Nagasaki	August 1, 1944	November 18, 1944	December 23, 1944	To Russia 1947
CD-82	Mitsubishi, Nagasaki	September 6, 1944	November 18, 1944	December 31,1944	Sunk by Russian aircraft August 10, 1945
CD-84	Mitsubishi, Nagasaki	September 6, 1944	November 18, 1944	December 31, 1944	Sunk by USN submarine *Hammerhead* March 29, 1945
CD-102	Mitsubishi, Nagasaki	September 1, 1944	December 4, 1944	January 20, 1945	To Russia 1947
CD-104	Mitsubishi, Nagasaki	September 1, 1944	December 16, 1944	January 31, 1945	To China 1947; stricken 1960
CD-106	Ishikawajima	September 18, 1944	December 7, 1944	January 14, 1945	To US 1947 and scrapped

CD-112	Kawasaki, Senshu	May 10, 1944	September 5, 1944	October 24, 1944	Sunk by USN submarine *Barb* July 18, 1945
CD-118	Ishikawajima	June 8, 1944	November 20, 1944	December 27, 1944	To China 1947; captured by Communists 1949
CD-124	Kawasaki, Senshu	June 29, 1944	January 12, 1945	February 9, 1945	Scrapped 1948
CD-126	Kawasaki, Senshu	November 7, 1944	February 25, 1945	March 26, 1945	To UK 1947; scrapped 1948
CD-130	Harima	February 22, 1944	May 24, 1944	August 12, 1944	Sunk by USAAF aircraft March 29, 1945
CD-132	Harima	April 10, 1944	June 25, 1944	September 7, 1944	Scrapped 1948
CD-134	Harima	May 26, 1944	July 29, 1944	September 30, 1944	Sunk by USAAF B-25s April 6, 1945
CD-138	Harima	June 27, 1944	September 1, 1944	October 23, 1944	Sunk by USAAF aircraft January 2, 1945
CD-144	Harima	August 1, 1944	October 10, 1944	November 12, 1944	Sunk by USN submarine *Besugo* February 2, 1945
CD-150	Harima	September 4, 1944	November 15, 1944	December 24, 1944	To US 1947 and sunk as target
CD-154	Harima	October 12, 1944	December 26, 1944	February 7, 1945	To UK 1947 and scrapped
CD-156	Harima	November 17, 1944	January 25, 1945	March 8, 1945	To UK 1947 and scrapped
CD-158	Harima	December 28, 1944	February 25, 1945	April 13, 1945	To US 1947 and scrapped
CD-160	Harima	January 27, 1945	April 10, 1945	August 16, 1945	To UK 1947; scrapped 1948
CD-186	Mitsubishi, Nagasaki	November 4, 1944	December 30, 1944	February 15, 1945	Sunk by USN carrier aircraft April 2, 1945
CD-190	Mitsubishi, Nagasaki	November 20, 1944	January 16, 1945	February 21, 1945	Scrapped 1948
CD-192	Mitsubishi, Nagasaki	December 5, 1944	January 30, 1945	February 28, 1945	To China 1947
CD-194	Mitsubishi, Nagasaki	December 18, 1944	February 15, 1945	March 15, 1945	To China 1947; captured by Communists 1949
CD-196	Mitsubishi, Nagasaki	December 31, 1944	February 26, 1945	March 31, 1945	To Russia 1947
CD-198	Mitsubishi, Nagasaki	January 17, 1945	February 26, 1945	March 31, 1945	To China 1947; captured by Communists 1949
CD-200	Mitsubishi, Nagasaki	January 31, 1945	March 19, 1945	April 20, 1945	Scrapped 1948
CD-202	Mitsubishi, Nagasaki	February 16, 1945	April 2, 1945	July 7, 1945	Scrapped 1947
CD-204	Mitsubishi, Nagasaki	February 27, 1945	April 14, 1945	July 11, 1945	Scrapped 1948

Armament and Modifications

The armament of the Type D was identical to that of the Type C escorts. The Type D escorts received the same upgrades in regards to their antiaircraft fit, and later units received the Type 13 radar on the mainmasts and the Type 3 Model 2 sonar.



Type D escort *CD-42* in August 1944, the month of her completion. The ship entered service with a full antiaircraft suite and a Type 22 on her foremast. *CD-42* was sunk with all hands on January 10, 1945 in the East China Sea by USN submarine *Puffer*. (*Ships of the World* Magazine)

Type D *kaibokan CD-132* in Kure, Japan on October 16, 1944. Surviving escort ships were modified for service as repatriation ships. The Allies mobilized many former IJN ships for the immense task of returning some six million Japanese military and civilian personnel from all over Asia and the Pacific. Following her service as a repatriation ship, *CD-132* was scrapped in 1948. (NARA)

War Service

Just as for the rest of the IJN's escorts, the Type D *kaibokan* were relatively ineffective as ASW hunters. The only confirmed loss of a USN submarine at the hands of these ships was recorded on November 11, 1944 when *CD-4* destroyed submarine *Scamp*. Additionally, *CD-8* and *CD-32* may have contributed to the destruction of *Snook* on April 14, 1945, but this remains unconfirmed. In addition, *CD-6* damaged *Halibut* so severely on November 14, 1944 that she was deemed unfit for further service.

Of the 63 ships in the class completed during the war, 26 were sunk and 37 survived. Of the 26 lost in combat, 13 were sunk by air attack, 12 to submarine attack, and one to mines. Of the 37 surviving ships, nine were assigned postwar minesweeping duties and 18 were assigned repatriation duties.

Number 2 Class (Type D) Class Specifications	
Displacement	740 tons standard displacement; 900 tons trial displacement
Dimensions	Length 228ft 1in overall; Beam 28ft 3in; Draft 10ft
Speed	17.5kts
Range	4,500nm at 14kts
Crew	141 (design); rising to 185

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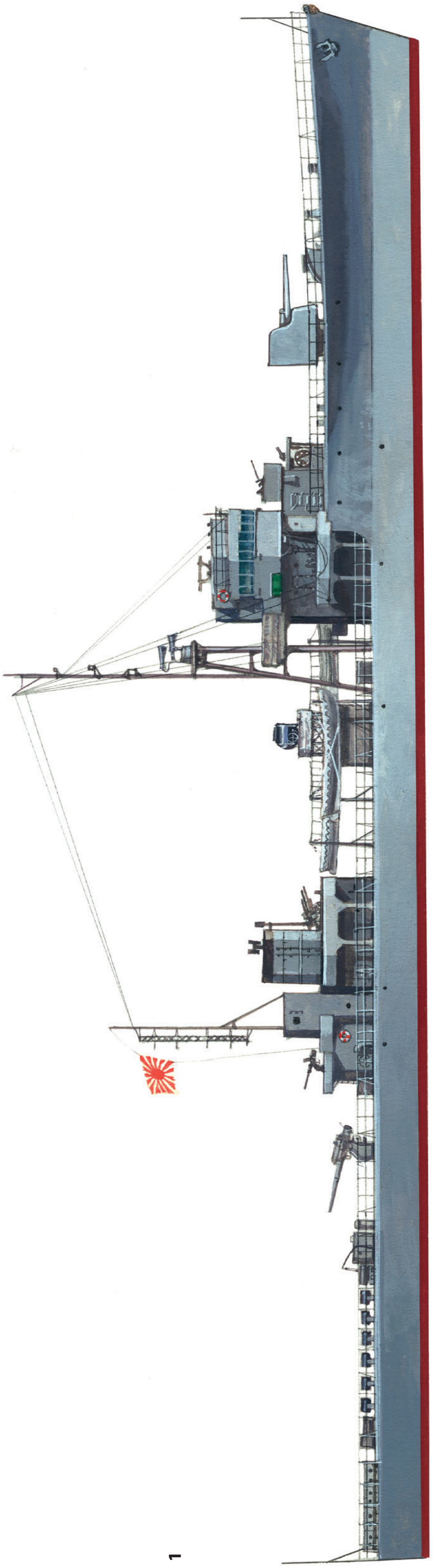
TYPE C AND D *KAIBOKAN*

When the full magnitude of the submarine threat to its sea lines of communication became apparent, the IJN finally got serious about building adequate numbers of ASW escorts. The result was the Type C and D escorts. These were short, slow, and ugly ships but were tailored for mass production.

1: This depicts a Type C escort as it was completed in 1944. The hull design eliminated any curves to facilitate quick production in small yards. The squat superstructure has also been simplified. The stack has been moved aft, which, along with the overall reduced size of the hull, provides the best recognition feature for this class. Two 4.7-inch guns are evident, but only the forward one has been provided with a shield.

Antiaircraft protection is provided by two twin 25mm mounts abreast the bridge and two triple mounts abreast the stack. ASW weaponry has been emphasized with 12 depth charge launchers aft and an 80mm mortar on the forward superstructure. Note the Type 22 radar on the foremast and a Type 13 on the mainmast.

2 & 3: These depict a Type D unit in its final (1945) configuration. The Type D was an identical version of the Type C, but with turbine engines. To accommodate this propulsion system, the small stack has been moved amidships, which provides the best recognition feature for this class. This also required the reconfiguration of the aft deck house and the placement of the searchlight further aft. The armament configuration is identical to that of the Type C, with two single 4.7-inch guns, both with shields. The antiaircraft suite has been augmented, with single 25mm guns forward of the bridge and on the aft deck house. The ASW weaponry remains unaltered. Note the addition of radars on both masts.



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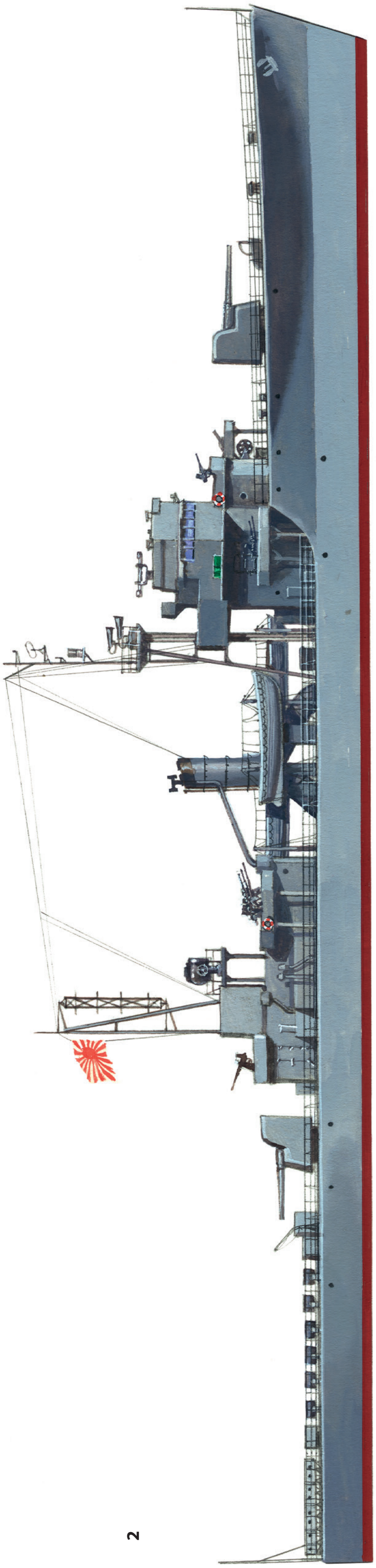

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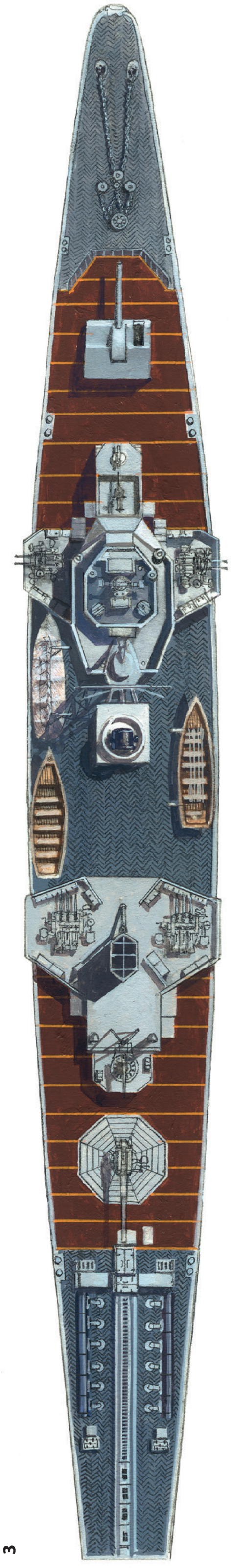

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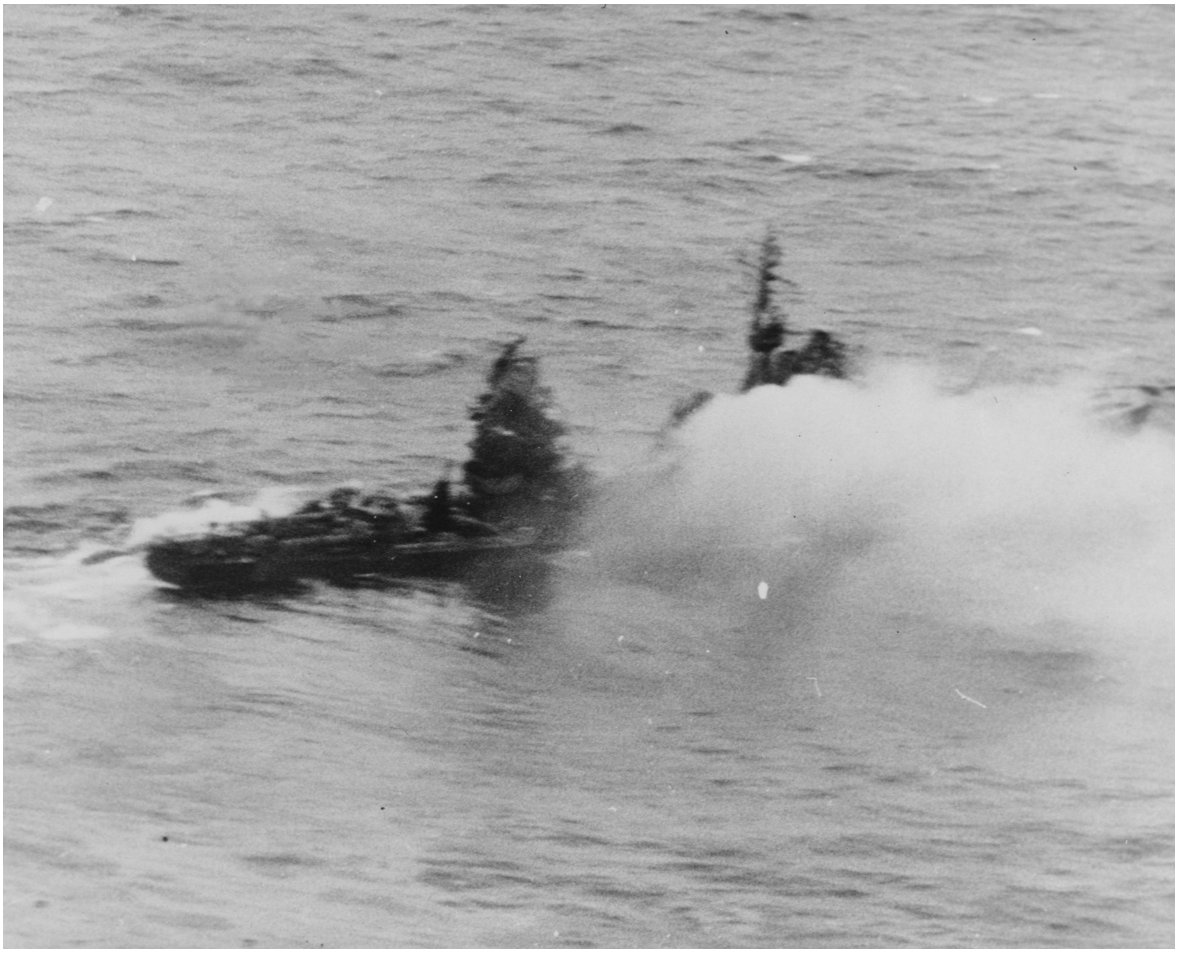
ANALYSIS AND CONCLUSION

The IJN's ASW efforts during the Pacific War were notable for their lack of success. There were many reasons for this, but a lack of priority for trade protection stands out as the foremost explanation. This resulted in an inadequate number of escorts, flawed doctrine and tactics, and weak ASW training. The bottom line was disastrous for Japan. Virtually all trade to the island nation was cut off by the end of the war.

The numbers and types of ships the IJN devoted to ASW in general and trade protection in particular were universally found wanting. The small numbers of *kaibokan* were a major weakness. After a late start, the IJN was able to get 173 *kaibokan* into service. However, many of these entered service too late to have an impact. In contrast, the USN accepted 440 destroyer escorts (the closest counterpart to the IJN's *kaibokan*) and delivered another 78 destroyer escorts to the Royal Navy. These ships were all larger, faster, and simply more capable than the IJN's escorts and proved much more effective in their intended role. IJN escorts with their rudimentary sensors and ineffective weapons proved unable to deal with USN submarines, which were equipped with world-class sensors and reliable weapons, commanded by aggressive officers, and supplied with



On January 12, 1945, the USN's Fast Carrier Force wreaked havoc in the South China Sea against Japanese shipping. On this day, seven *kaibokan* were sunk in addition to many merchant ships. This is either *CD-35* or *CD-43* on fire as a result of attacks by aircraft from carrier *Lexington*. When exposed to the increasing weight of American airpower, the *kaibokan* proved extremely vulnerable. (NARA) excellent intelligence on the movements of Japanese convoys. The result was predictable, and the result was that the *kaibokan* were more effective as rescue ships saving the crews of the ships they were supposed to be protecting after they were torpedoed than they were as submarine hunters. The magnitude of this failure can be illustrated with a few statistics. Fifty-two USN submarines were lost during the war, most of them in the Pacific. Of these, probably 17 were sunk by Japanese surface ships. Of these, escorts accounted for only six. IJN fleet destroyers, doing ASW as a secondary duty, sank an equal amount. In return, American submarines sank 1,113 Japanese merchant ships of 500 tons or greater, with a total tonnage of 4,779,902 gross tons.

Overall, the design of the *kaibokan* can be described as unsatisfactory. Their lack of speed and effective weaponry made them ineffective submarine hunters, and by 1944 they were also demonstrating that their meager antiaircraft capabilities made it difficult for them to operate in areas increasingly dominated by US airpower. Worse than this, the early designs made mass production impossible until it was too late. On the positive side, they were tough ships, with many surviving torpedo hits and mine attacks. Overlooked by the IJN at the start of the war, the lack of an effective *kaibokan* design became a prime factor in losing the war for the IJN.

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